

Alternate US 19 (SR 595) Corridor Study

From Belleair Road to the Pinellas/Pasco County Line in Pinellas County

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Draft Corridor Alternatives and Strategies Report



CORRIDOR ALTERNATIVES AND STRATEGIES REPORT

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This Corridor Alternatives and Strategies Report contains detailed engineering and environmental information for the Alternate US 19 (SR 595) Corridor Study from Belleair Road to the Pinellas/Pasco County Line in Pinellas County, Florida.

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Date

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Glossary of Terms

Term	Definition
3-R	Resurfacing, Restoration, Rehabilitation
AA DT	Average Annual Daily Traffic
ADA	Americans with Disabilities Act
AOI	Area of Interest
BAT	Business Access and Transit
CASR	Corridor Alternatives and Strategies Report
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFI	Continuous Flow Intersection
CRA	Community Redevelopment Areas
CRAS	Cultural Resource Assessment Survey
CSX	Chessie-Seaboard Merger
DLT	Displaced Left Turn
DO	Dissolved Oxygen
DOA	Determination of Applicability
DTM	Drainage Technical Memorandum
DTTM	Design Traffic Technical Memorandum
EFH	Essential Fish Habitat
ERP	Environmental Resource Permit
EST	Environmental Screening Tool
ETDM	Efficient Transportation Decision Making
FDEP	Florida Department of Environmental Protection
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FGDL	Florida Geographic Data Library
FIRM	Flood Insurance Rate Maps
GIS	Geographic Information System
HCM	Highway Capacity Manual
LOS	Level of Service
LRE	Long Range Estimate
MPH	Miles per Hour
MUT	Median U-Turn
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRHP	National Register of Historic Places
OFW	Outstanding Florida Waters
PAG	Project Advisory Group
PCPT	Pasco County Public Transportation
PD&E	Project Development and Environment



PIP	Public Involvement Plan
PSTA	Pinellas Suncoast Transit Authority
RFB	Rapid Flashing Beacon
SHPO	State Historic Preservation Officer
SIDRA	Signalized & unsignalized Intersection Design and Research Aid
SWFWMD	Southwest Florida Water Management District
TWLT	Two-Way Left Turn
USACE	United States Army Corps of Engineers
USC	United States Code
USCG	United States Coast Guard
USGS	United States Geological Survey
WBID	Water Body Identification



1 Introduction

The Florida Department of Transportation (FDOT) District Seven is conducting a Corridor Study along Alternate US 19 (SR 595) in Pinellas County that begins at Park Street North in the south and ends at the Pinellas/Pasco County line in the north. This Alternate US 19 (SR 595) Corridor Study is divided into two segments. The southern extents are from Park Street North to Belleair Road, and the northern extents are from Belleair Road to the Pinellas/Pasco County line. This Corridor Alternatives and Strategies Report (CASR) focuses on the northern extent from Belleair Road to the Pinellas/Pasco County line (Work Program Item Segment Number: 435909-2), with a total length of roughly 17.9 miles (mi). The study area extents are depicted on **Figure 1.1**.

To effectively describe and evaluate the unique transportation characteristics of the project, the study corridor is divided into four segments as listed below:

- Segment A – Belleair Road to Union Street (4.8 mi) – City of Clearwater
- Segment B – Union Street to Curlew Road (3.8 mi) – City of Dunedin
- Segment C – Curlew Road to Klosterman Road (5.6 mi) – Unincorporated Pinellas County/ Palm Harbor
- Segment D – Klosterman Road to Pinellas/Pasco County Line (3.7 mi) – City of Tarpon Springs

The existing conditions analysis, design traffic analysis, safety analysis, and vision for the corridor are summarized in four previous reports: the Existing Conditions Report, Design Traffic Technical Memorandum, Road Safety Report, and Corridor Vision Plan, respectively. This CASR summarizes the findings from these reports, documents the stakeholder input received throughout the duration of the Corridor Study, and details the development of the proposed multimodal transportation improvements recommended for the Alternate US 19 study corridor.

1.1 Purpose and Need

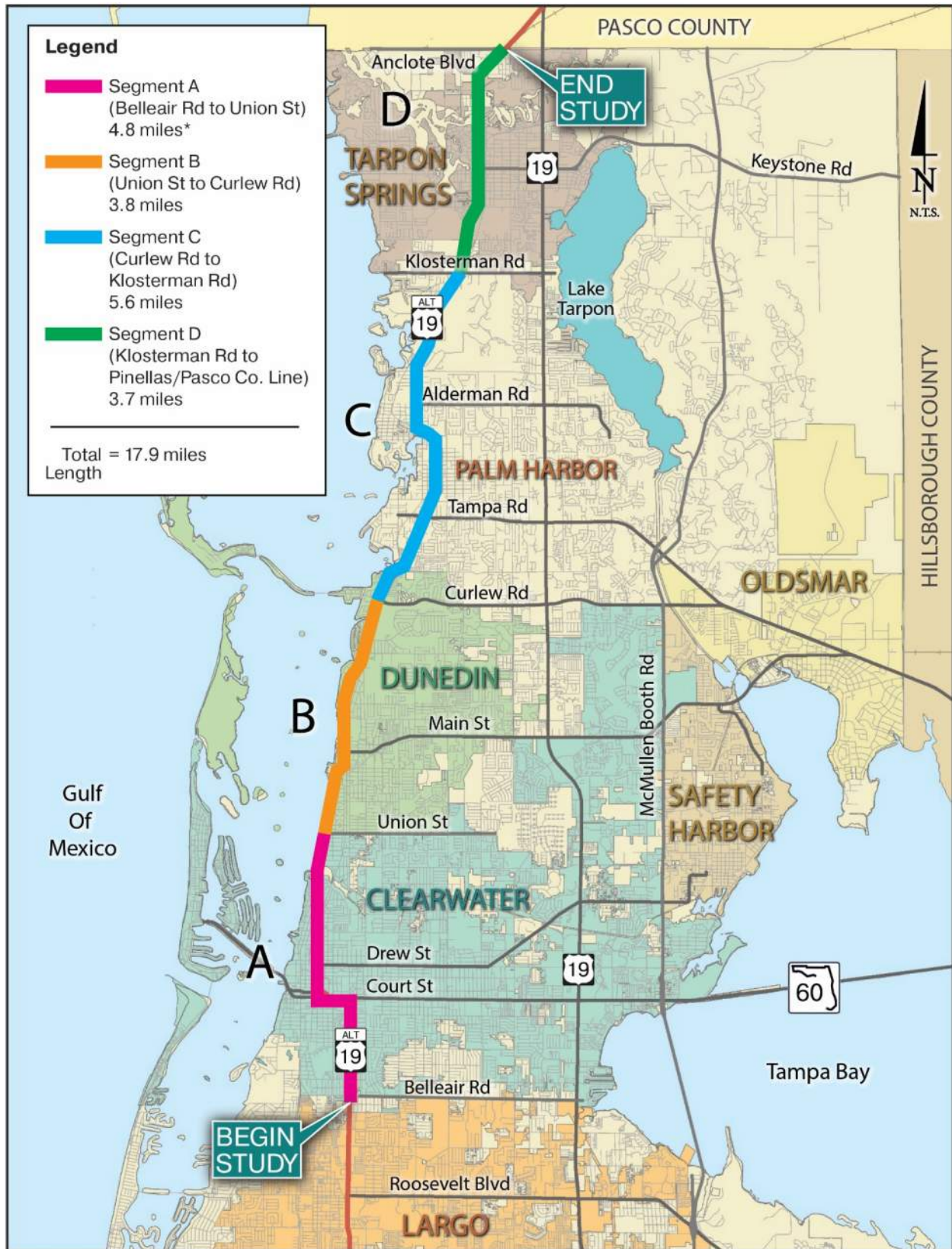
This CASR has been prepared in coordination with FDOT District Seven and Forward Pinellas and outlines a series of guiding goals and objectives needed to identify a range of multimodal solutions to address the mobility needs along the corridor within a context that reflects the long-term vision for the study corridor. The CASR includes short and long-term strategies that guide future development within the corridor, as well as improvements that can potentially be advanced in the near term through local agency participation and/or by FDOT as Resurfacing, Restoration, Rehabilitation (3-R) projects, safety enhancements or traffic operations signal re-timing projects, design push-button projects, or Project Development and Environment (PD&E) studies.

This study has a two-pronged purpose. First, to address near-term multimodal transportation needs through context sensitive solutions, and secondly, to develop a long-term corridor vision that defines the goals and objectives and policy requirements to establish a more walkable, bicycle-friendly, urban environment. Improvements to Alternate US 19 are needed to:

- Alleviate traffic congestion along the corridor;
- Improve level of service (LOS) at major intersection;
- Reduce the number of pedestrian/bicycle crashes; and
- Improve connectivity and accessibility to transit.



Figure 1.1 Project Location Map



*Includes the eastbound and westbound one-way pairs along Chestnut Street and Court Street.



In an effort to improve mobility and enhance safety within the corridor, several alternatives have been developed including short-term improvements such as added bike lanes, adding sidewalks, or lengthening turn lanes; and long-term options such as lane repurposing or innovative intersection design concepts.

1.2 The Corridor Vision Plan






A *Corridor Vision Plan* was prepared for the Alternate US 19 Corridor Study from Belleair Road to the Pinellas/Pasco County line. A vision is the aspirational description of what could be achieved on the Alternate US 19 Corridor over the short, mid, and long-term. Throughout the course of the Alternate US 19 Corridor Study, a collaboration between the community, stakeholders, and a Project Advisory Group (PAG) took place to develop a corridor vision and to identify the future transportation needs and concerns along the corridor. The corridor vision helped to guide the improvement recommendations. These include issues relating to capacity, traffic operations, safety, access and egress, freight movements, transit, bicycles, and pedestrian movements.

The visioning process for Alternate US 19 began by analyzing existing conditions and soliciting thoughts, concerns, and ideas from the general public, key stakeholders, and government agencies. The study team grouped issues and concerns into a series of guiding principles that are meant to direct the proposed concepts as well as policy and planning recommendations. The guiding principles developed for the study are summarized in **Table 1.1**.

On December 5, 2017, a Corridor Visioning Workshop was held in which attendees ranked the guiding principles in order of importance. Individuals could rank the guiding principles by jurisdiction or for the overall corridor. From most to least important, the ranking is as follows for the overall corridor: Increase Safety, Match the Character, Balance User Needs, Celebrate the Unique Assets, and Enhance the Networks.

The principles set the context for future decisions regarding the design of the horizontal and vertical layout of the corridor and the streetscape elements to be included (such as sidewalks, bicycle paths or lanes, street trees, and other similar items).

Table 1.1 Guiding Principles for Alternate US 19

	Guiding Principle	Description
	Match the Character	Match future street improvements to the activities and character of the surrounding context.
	Increase Safety	Use roadway improvements to increase the level of safety for motorists, pedestrians, transit users, bicyclists, and freight haulers.
	Balance User Needs	Create typical sections that balance the needs of all users and activities expected along the corridor.
	Enhance the Networks	Use the existing and future development to enhance the transportation networks and promote connectivity in the various downtowns.
	Celebrate the Unique Assets	Protect and integrate historic, cultural, and environmental elements found in the corridor in future plans and projects.



2 Existing Conditions

An *Existing Conditions Report* was prepared for the Alternate US 19 Corridor Study from Belleair Road to the Pinellas/Pasco County line. The following sections summarize existing areas of concern along the Alternate US 19 corridor.

2.1 Typical Sections

Alternate US 19 is an urban principal and an urban minor arterial facility that runs in the north and south directions through Pinellas County. The posted speed limit varies from 25 to 45 miles per hour (mph). Within the project limits, Alternate US 19 is comprised of varying two to six-lane typical sections with portions being divided and others undivided, as well as portions being two-way segments and others being one-way segments.

The existing roadway typical sections, as shown in **Figure 2.1**, are described as follows:

Clearwater (Segment A)

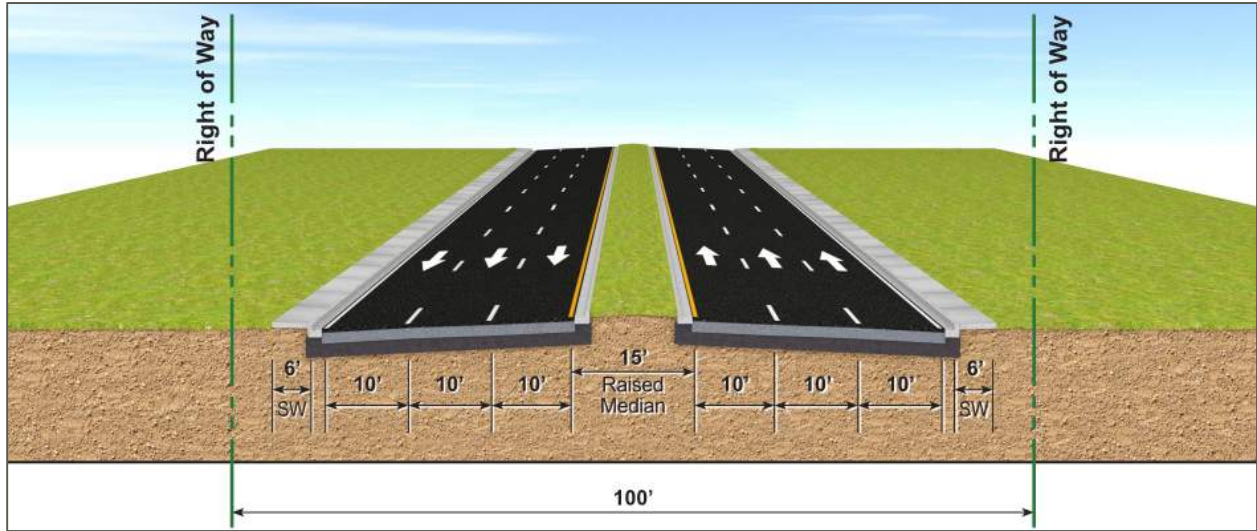
From Belleair Road to Union Street, there are seven separate typical sections (labeled separately as A1-A6, with A-3a and A-3b):

- A-1 (Missouri Avenue from Belleair Road to Court Street) consists of 100 feet of right-of-way with six 10-foot general purpose lanes, a 15-foot raised median, and two 6-foot sidewalks;
- A-2 (Court Street from Missouri Avenue to MLK Jr. Avenue) consists of 100 feet of right-of-way with four 10 to 11-foot general purpose lanes, a 14-foot two-way left turn (TWLT) lane, two 4-foot bike lanes, and two 5-foot sidewalks;
- A-3a (Court Street from MLK Jr. Avenue to Myrtle Avenue) consists of 100 feet of right-of-way with three 11-foot one-way general purpose lanes (in the westbound direction), a 4-foot bike lane, and one 5-foot and one 10-foot sidewalk;
- A-3b (Chestnut Street from MLK Jr. Avenue to Myrtle Avenue) consists of 60 feet of right-of-way with three 10-foot one-way general purpose lanes (in the eastbound direction), a 10-foot auxiliary lane, and two 5-foot sidewalks (with one sidewalk outside of the right-of-way);
- A-4 (Myrtle Avenue from Chestnut Street to Marshall Street) consists of 60 feet of right-of-way with four 11-foot general purpose lanes and two 6-foot sidewalks;
- A-5 (Myrtle Avenue from Marshall Street to Fairmont Street) consists of 60 feet of right-of-way with three general purpose lanes (two in the southbound direction and one in the northbound direction) and two 6-foot sidewalks;
- A-6 (North Fort Harrison Drive/Edgewater Drive from Fairmont Street to Union Street) consists of 60 feet of right-of-way with two 13-foot general purpose lanes and two 5-foot sidewalks.

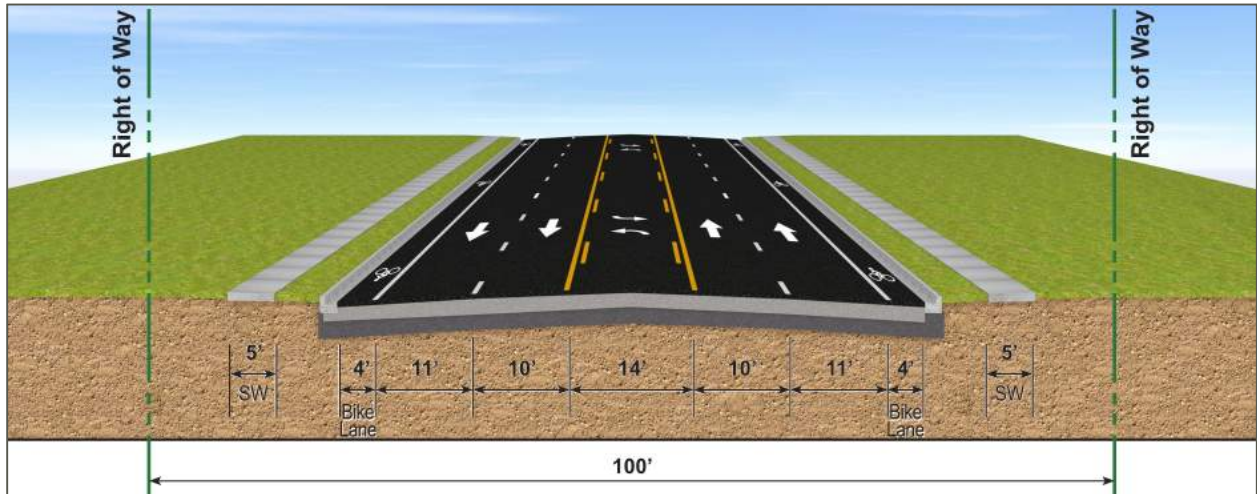


Figure 2.1 Existing Typical Sections

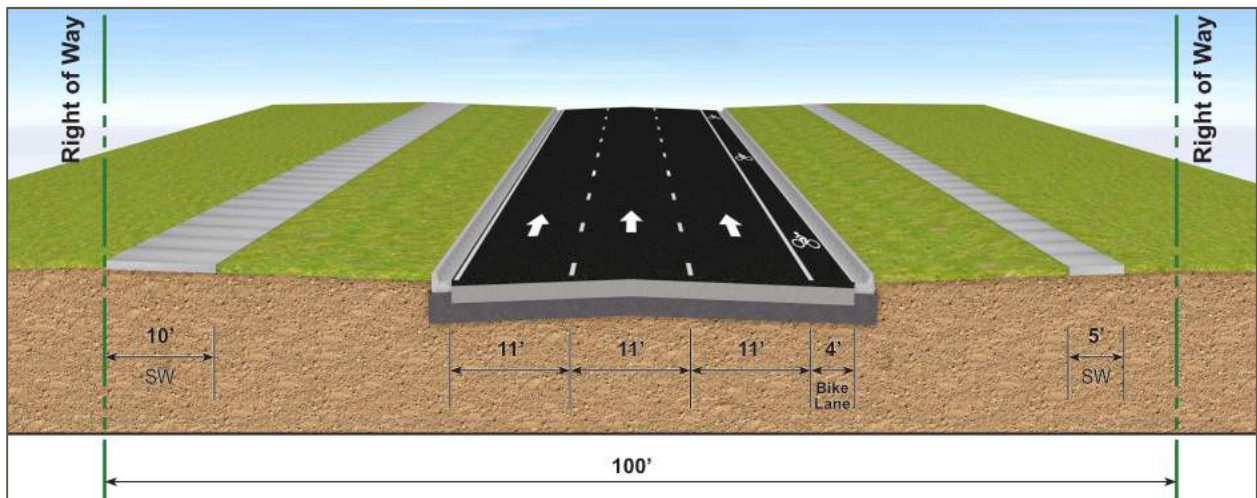
Segment A-1 – Missouri Avenue from Belleair Road to Court Street



Segment A-2 – Court Street from Missouri Avenue to MLK Jr. Avenue

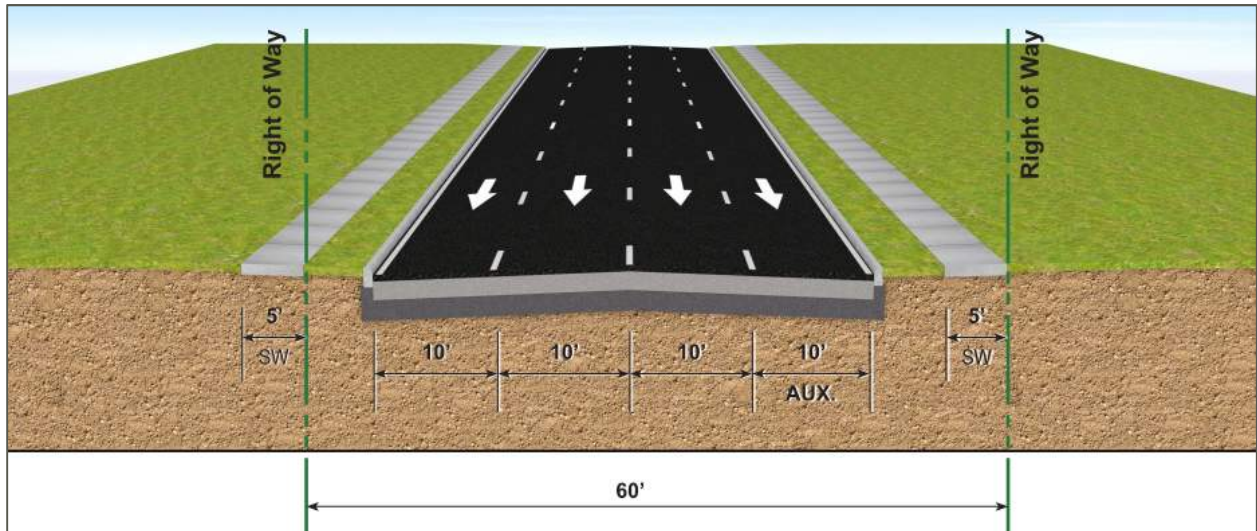


Segment A-3a – Court Street from MLK Jr. Avenue to Myrtle Avenue

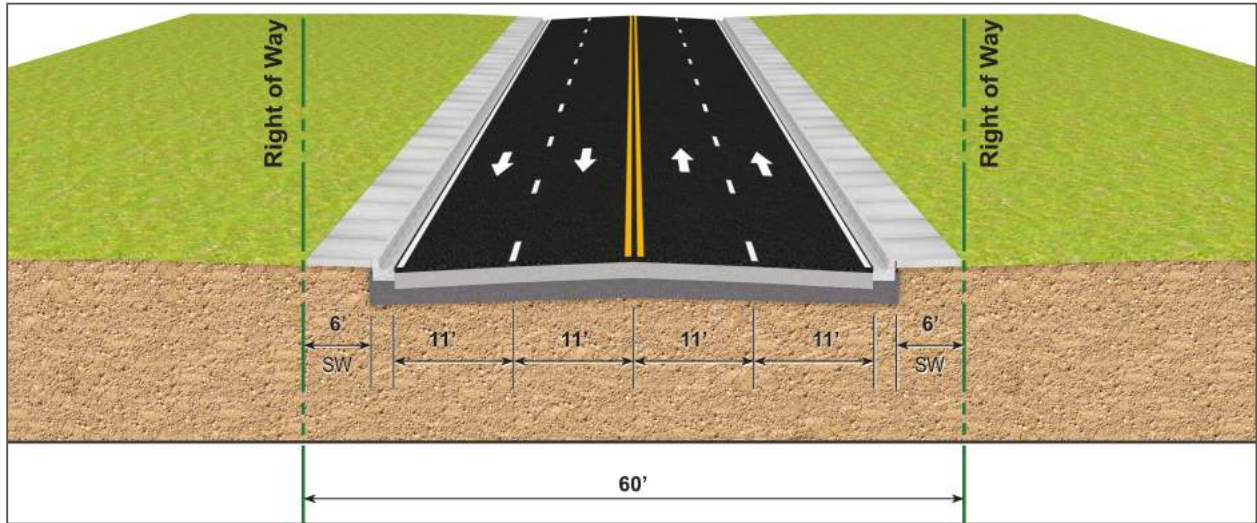




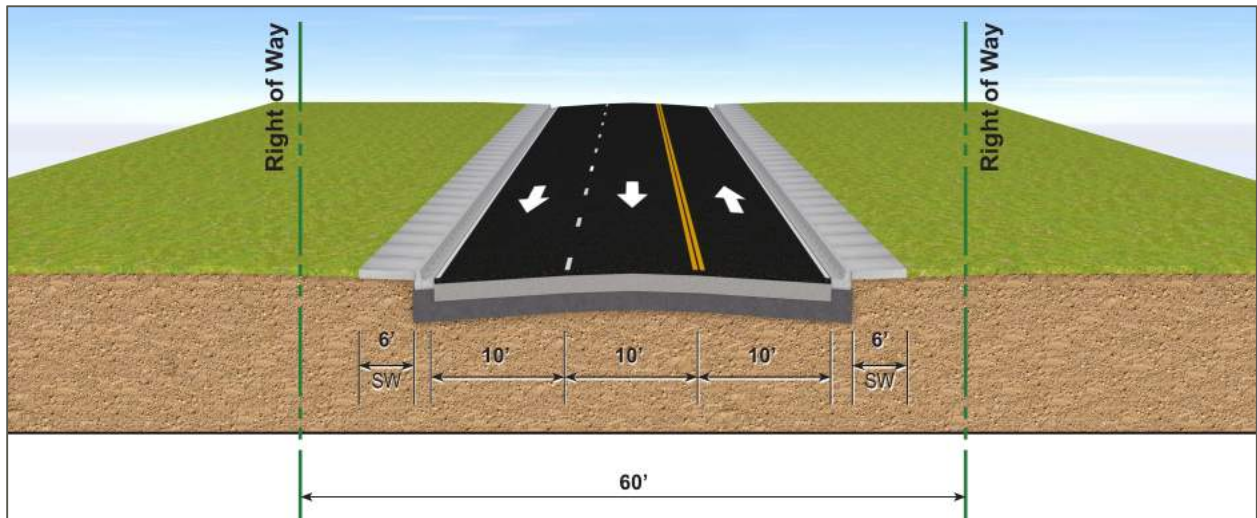
Segment A-3b – Chestnut Street from MLK Jr. Avenue to Myrtle Avenue



Segment A-4 – Myrtle Avenue from Chestnut Street to Marshall Street

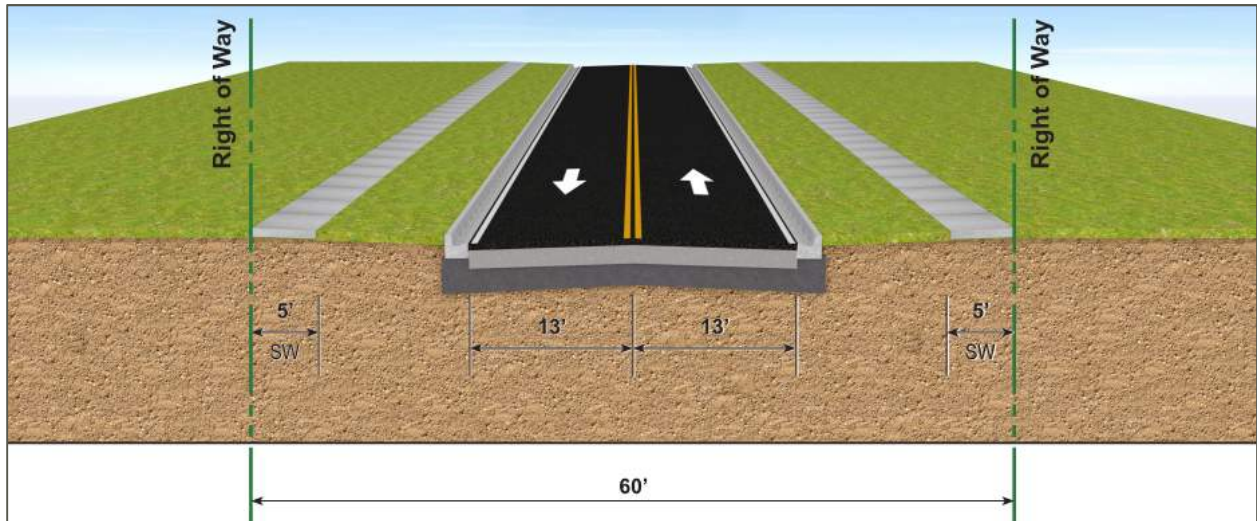


Segment A-5 – Myrtle Avenue from Marshall Street to Fairmont Street





Segment A-6 – North Fort Harrison Drive/Edgewater Drive from Fairmont Street to Union Street

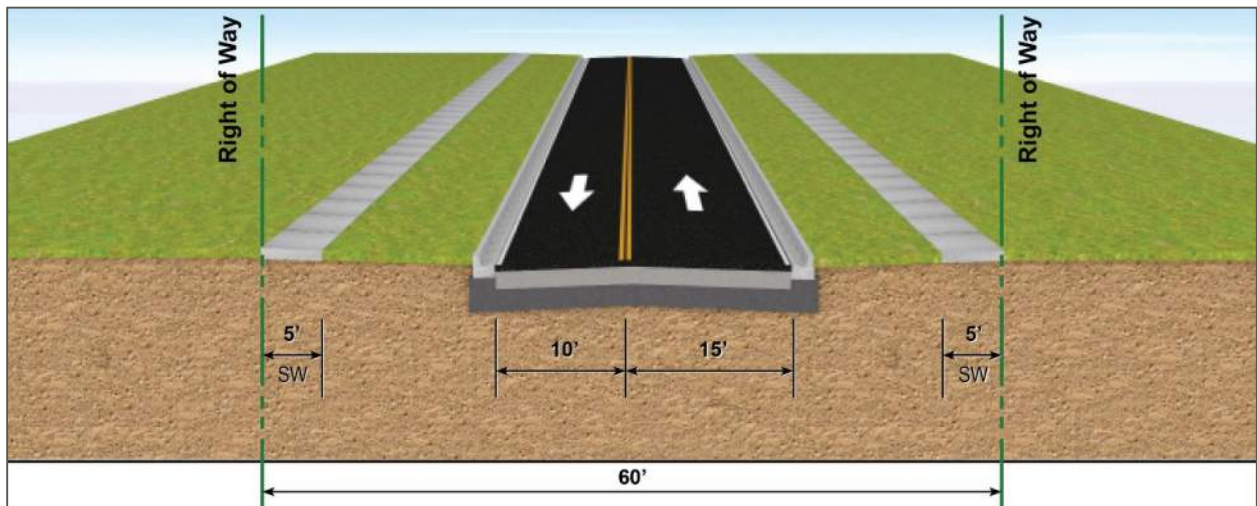


Dunedin (Segment B)

From Union Street to Curlew Road, there are three separate typical sections within Segment B (labeled separately as B1-B3):

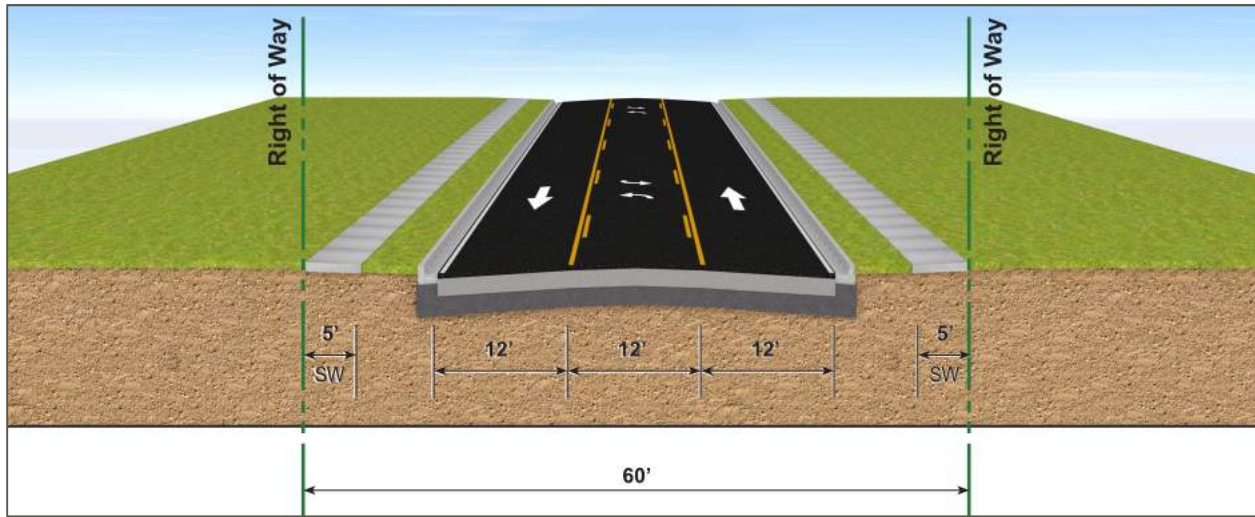
- B-1 (Edgewater Drive from Union Street to Main Street) consists of 60 feet of right-of-way with one 10-foot and one 15-foot general purpose lane and two 5-foot sidewalks;
- B-2 (Bayshore Boulevard from Main Street to Michigan Boulevard) consists of 60 feet of right-of-way with two 12-foot general purpose lanes, a 12-foot TWLT lane, and two 5-foot sidewalks;
- B-3 (Bayshore Boulevard from Michigan Boulevard to Curlew Road) consists of 60 feet of right-of-way with two 12-foot general purpose lanes, a 12-foot TWLT lane, two 5-foot paved shoulders, a 5-foot sidewalk, and the Pinellas Trail (outside of the right-of-way).

Segment B-1 – Edgewater Drive from Union Street to Main Street

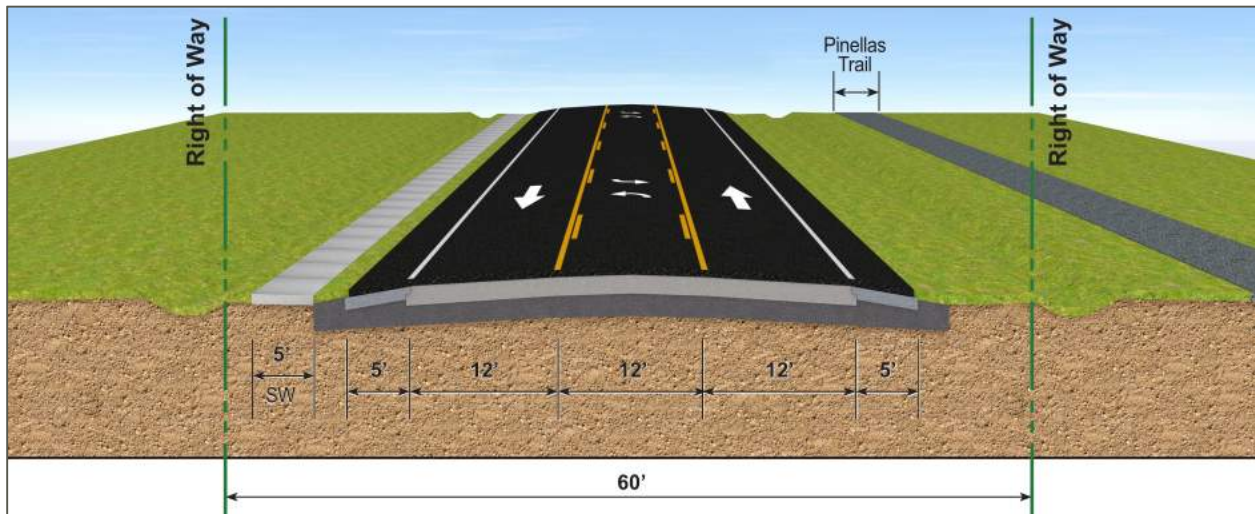




Segment B-2 – Bayshore Boulevard from Main Street to Michigan Boulevard



Segment B-3 – Bayshore Boulevard from Michigan Boulevard to Curlew Road



Palm Harbor (Segment C)

From Curlew Road to Klosterman Road, there are six separate typical sections within Segment C (labeled separately as C1-C6):

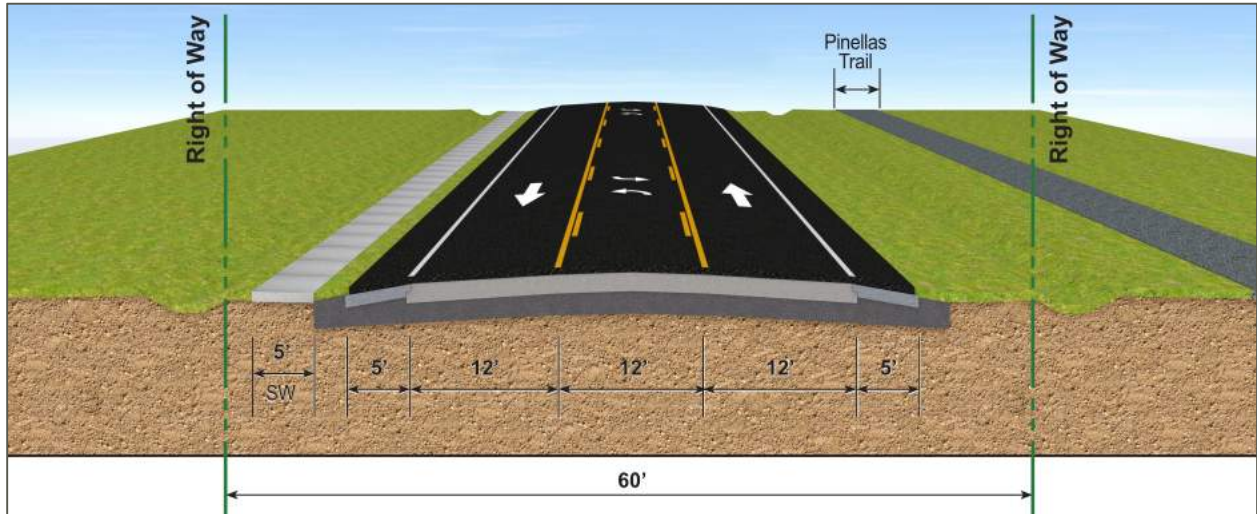
- C-1 (Bayshore Boulevard from Curlew Road to Pinellas Trail Crossing) consists of 60 feet of right-of-way with two 12-foot general purpose lanes, a 12-foot TWLT lane, two 5-foot paved shoulders, a 5-foot sidewalk, and the Pinellas Trail (outside of the right-of-way);
- C-2 (Alternate US 19 from Pinellas Trail Crossing to Tampa Road) consists of 60 feet of right-of-way with two 12-foot general purpose lanes, two 5-foot paved shoulders, and two 5-foot sidewalks;
- C-3 (Palm Harbor Boulevard from Tampa Road to Michigan Avenue) consists of 60 feet of right-of-way with two 12-foot general purpose lanes, a 12-foot TWLT lane, two 5-foot paved shoulders, and two 5-foot sidewalks;
- C-4 (Palm Harbor Boulevard from Michigan Avenue to Sutherland Bayou Park) consists of 60 feet of right-of-way with two 11-foot general purpose lanes, a 12-foot TWLT lane, one 3-foot



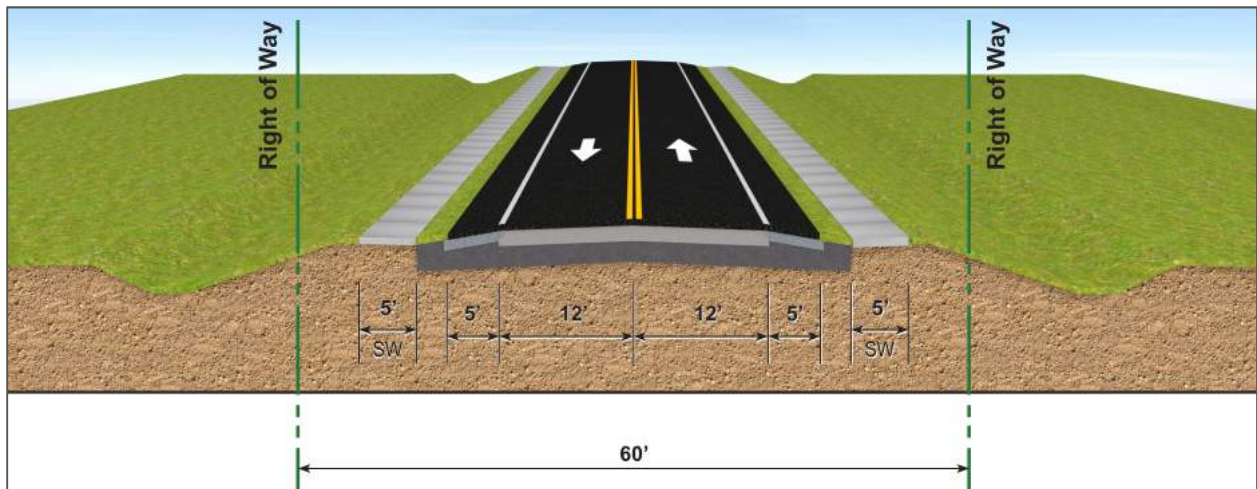
and one 5-foot paved shoulder, a 5-foot sidewalk, and the Pinellas Trail (outside of the right-of-way);

- C-5 (Palm Harbor Boulevard from Sutherland Bayou Park to Wai Lani Road) consists of 60 feet of right-of-way with two 12-foot general purpose lanes, a 12-foot TWLT lane, two 5-foot paved shoulders, and two 5-foot sidewalks;
- C-6 (Palm Harbor Boulevard from Wai Lani Road to Klosterman Road) consists of 60 feet of right-of-way with two 12-foot general purpose lanes, two 5-foot paved shoulders, and two 5-foot sidewalks.

Segment C-1 – Bayshore Boulevard from Curlew Road to the Pinellas Trail Crossing

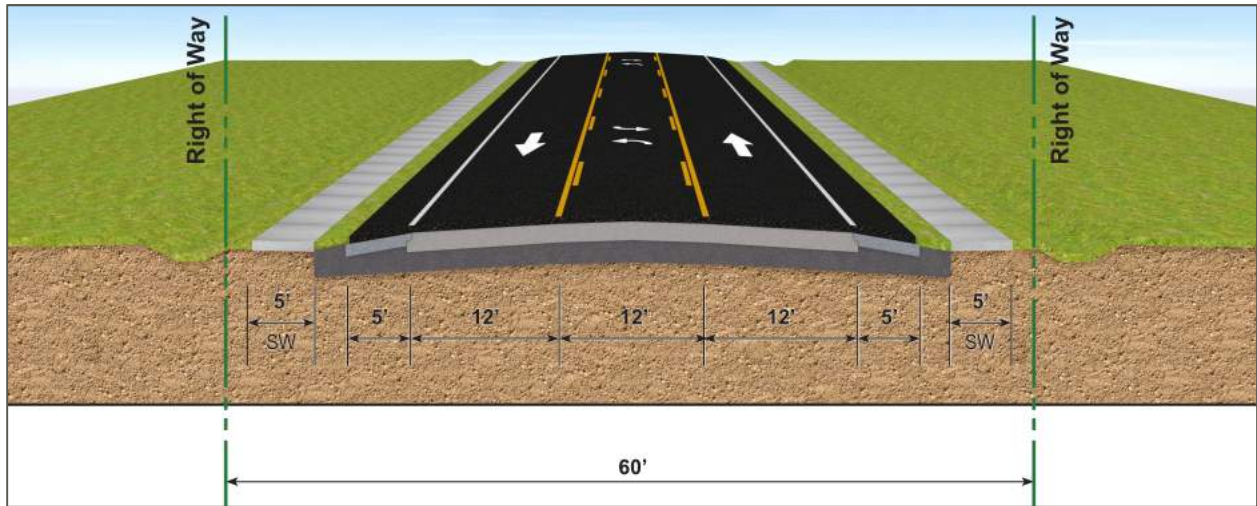


Segment C-2 – Alternate US 19 from Pinellas Trail Crossing to Tampa Road

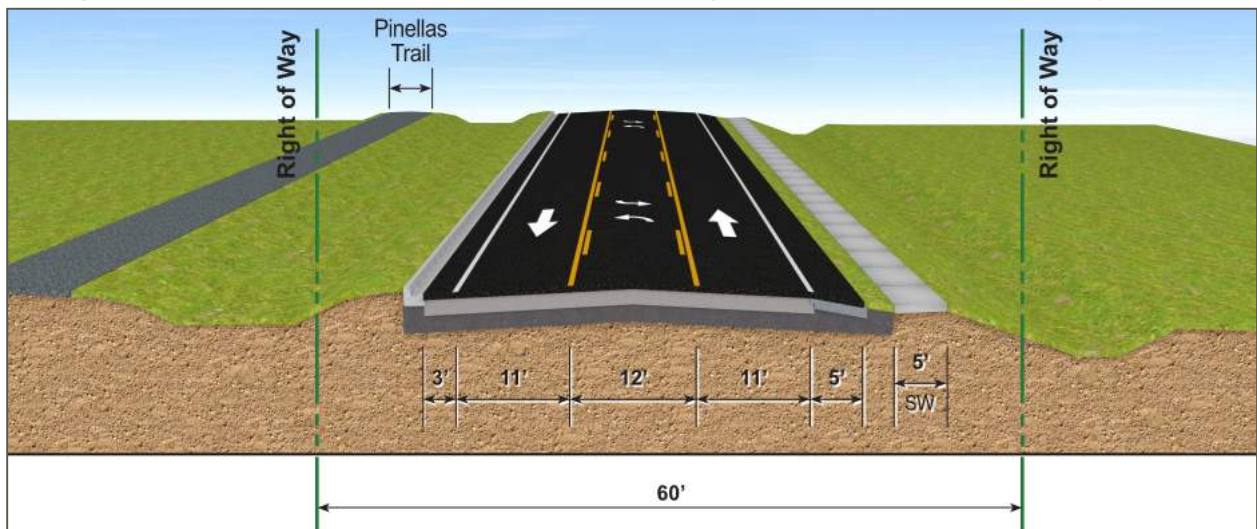




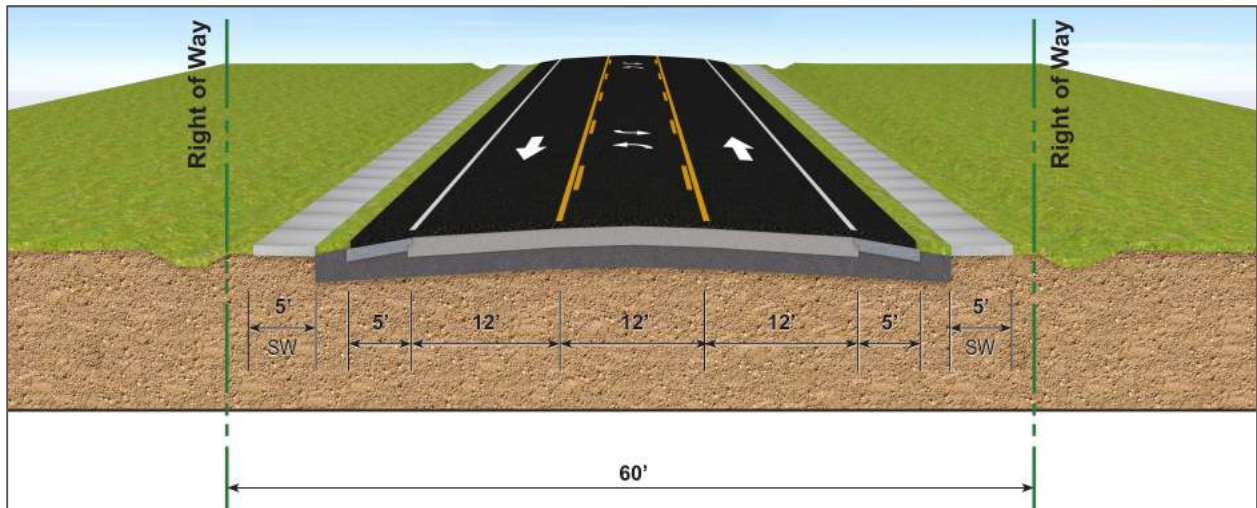
Segment C-3 – Palm Harbor Boulevard from Tampa Road to Michigan Avenue



Segment C-4 – Palm Harbor Boulevard from Michigan Avenue to Sutherland Bayou Park

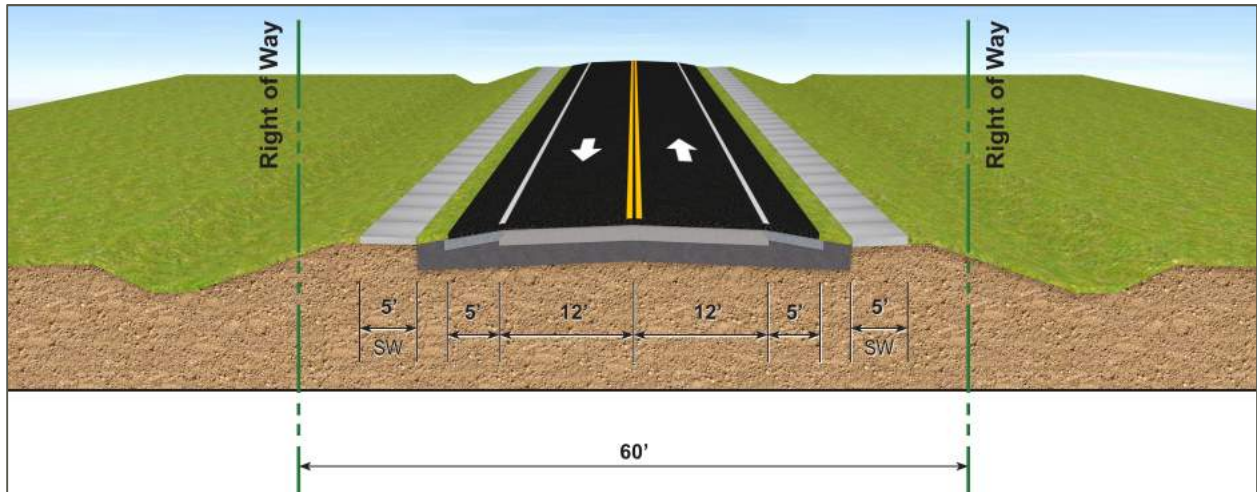


Segment C-5 – Palm Harbor Boulevard from Sutherland Bayou Park to Wai Lani Road





Segment C-6 – Palm Harbor Boulevard from Wai Lani Road to Klosterman Road

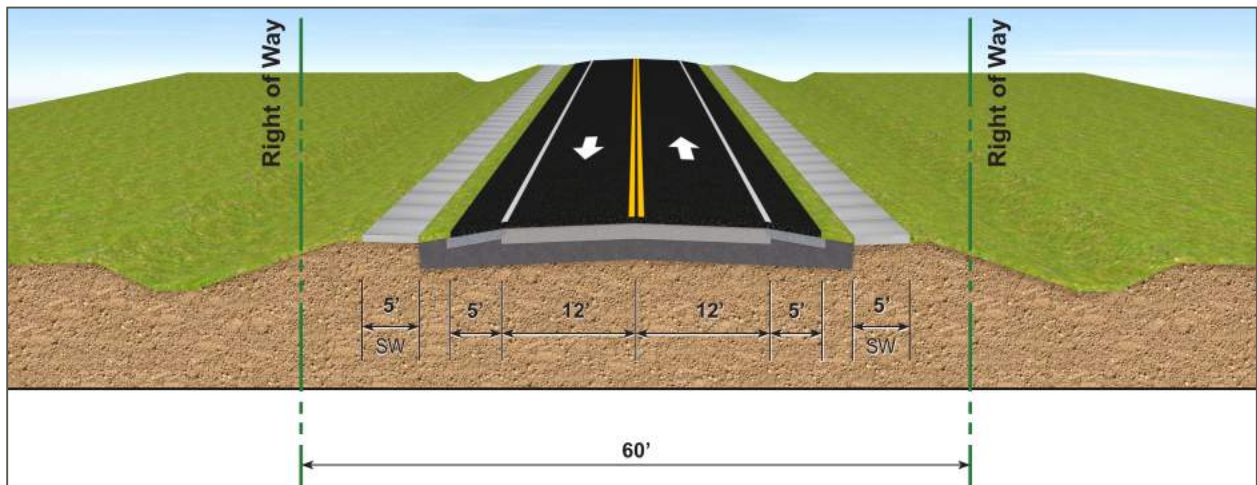


Tarpon Springs (Segment D)

From Klosterman Road to the Pinellas/Pasco County Line, there are four separate typical sections within Segment D (labeled separately as D1-D4):

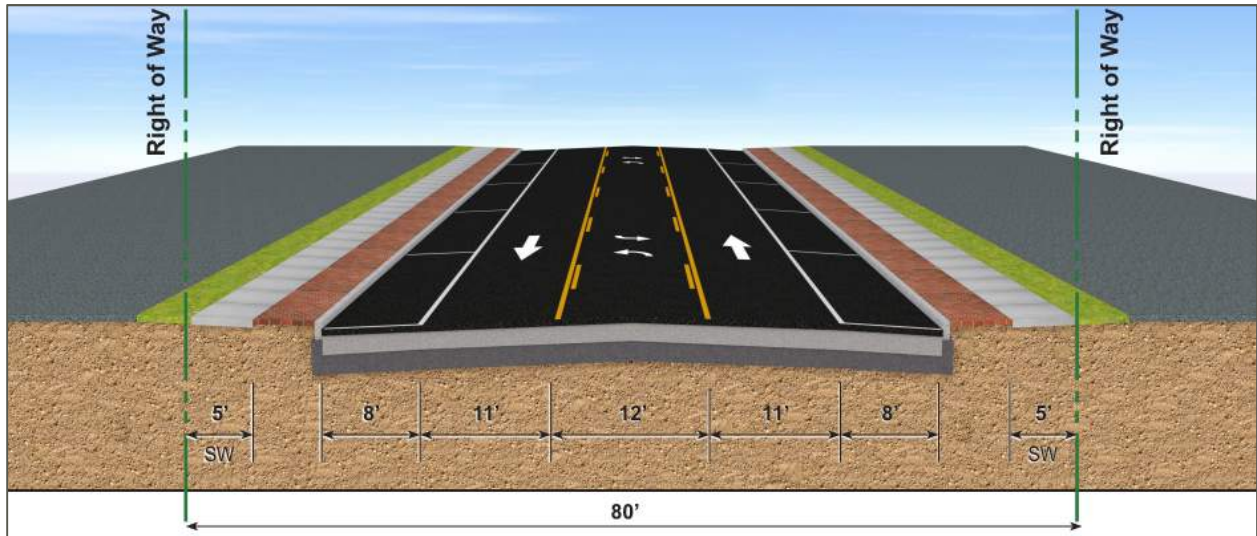
- D-1 (South Pinellas Avenue from Klosterman Road to Meres Boulevard) consists of 60 feet of right-of-way with two 12-foot general purpose lanes, two 5-foot paved shoulders, and two 5-foot sidewalks;
- D-2 (South Pinellas Avenue from Meres Boulevard to Orange Street) consists of 80 feet of right-of-way with two 11-foot general use lanes, a 12-foot TWLT lane, 8 feet of street parking on either side of the roadway, and two 5-foot sidewalks;
- D-3 (North Pinellas Avenue from Orange Street to the Anclote River) consists of 40 feet of right-of-way with two 12-foot general purpose lanes and two 4-foot sidewalks;
- D-4 (North Pinellas Avenue from the Anclote River to the Pinellas/Pasco County Line) consists of 100 feet of right-of-way with two 12-foot general purpose lanes and two 4-foot paved shoulders.

Segment D-1 – South Pinellas Avenue from Klosterman Road to Meres Boulevard

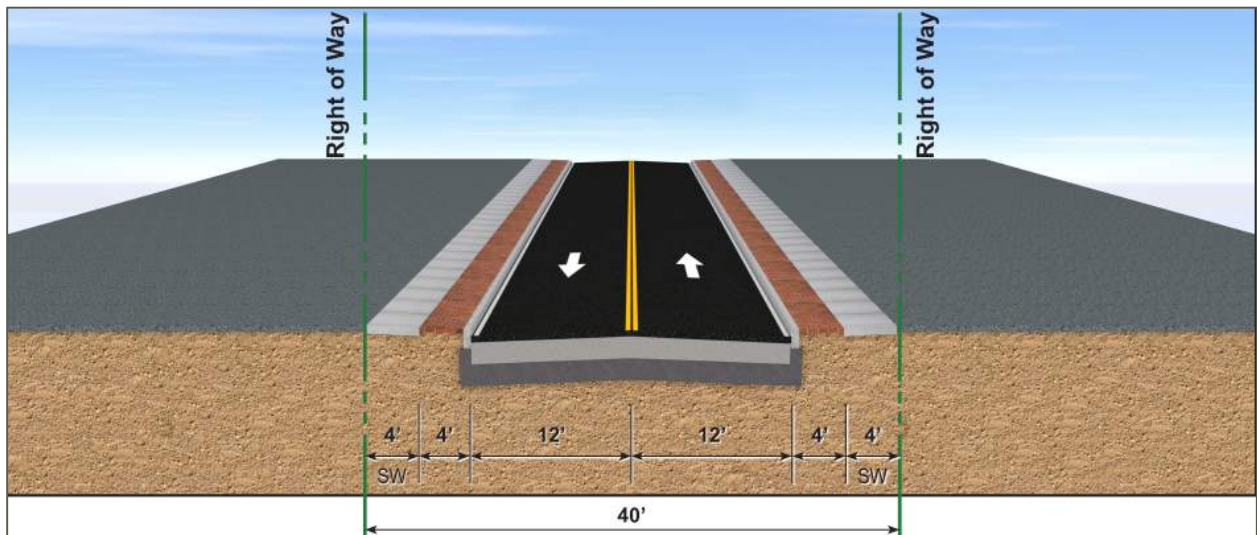




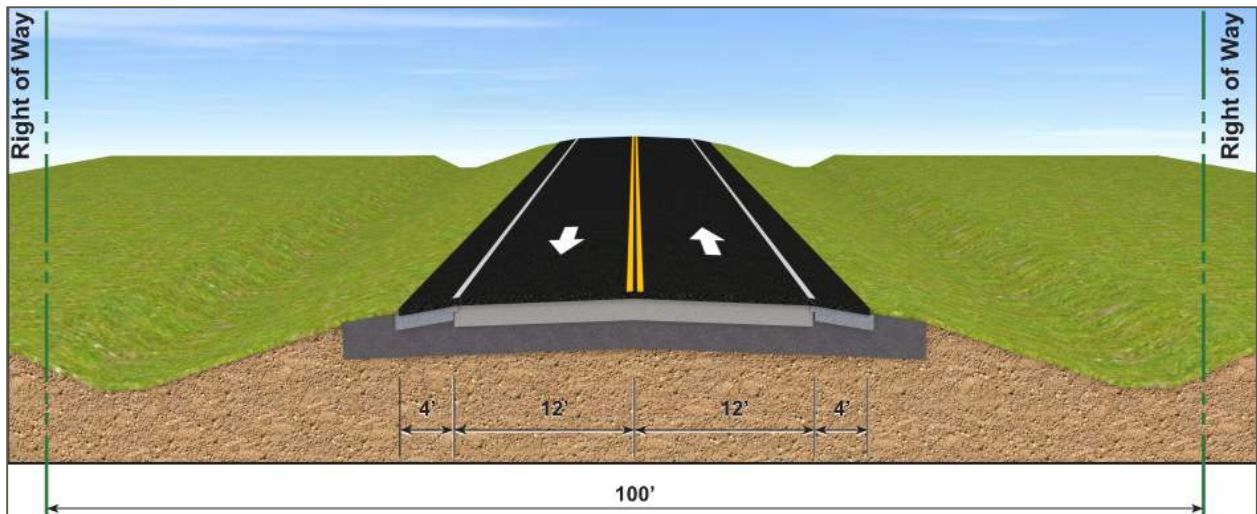
Segment D-2 – South Pinellas Avenue from Meres Boulevard to Orange Street



Segment D-3 – North Pinellas Avenue from Orange Street to the Anclote River



Segment D-4 – North Pinellas Avenue from the Anclote River to Pinellas/Pasco County Line





2.2 Land Use

Existing land use (2014) data was obtained from the Florida Geographic Data Library (FGDL). The current land uses along the Alternate US 19 study corridor are highly variable, with land uses consisting of agricultural, industrial, institutional, mining, public/semi-public, recreation, residential, retail/office, water, and other uses. From Belleair Road to the Pinellas/Pasco County Line, all of the above mentioned land uses are represented, with residential being the most prominent. A graphical depiction of the existing land uses can be found on **Figure 2.2** through **Figure 2.5**. The following describes the diversity of land use along the Alternate US 19 by segment:

- Segment A (Belleair Road to Union Street): Overall, the surrounding area of Alternate US 19 is residential. Roughly from Druid Road to Palmetto Street contains greater land use diversity consisting of industrial, institutional, public/semi-public, and other uses, as compared to the surrounding area. Also within close proximity to Alternate US 19, there are multiple recreational areas.
- Segment B (Union Street to Curlew Road): The surrounding area and along Alternate US 19, the land use is primarily residential. North of Lyndhurst Street to Wilson Street contains more diverse land use consisting of industrial, public/semi-public, recreational, retail/office, and other uses as well as residential. Also, from Palm Boulevard to Curlew Road, there is a recreational area along the east side of the corridor.
- Segment C (Curlew Road to Klosterman Road): Overall, the surrounding area of Alternate US 19 is residential. Directly along the entire length of the corridor, there is a diverse use of land consisting of industrial, public/semi-public, recreational, residential, retail/office, and other uses. South of Klosterman Road, there is a large recreational area on the east side of the corridor.
- Segment D (Klosterman Road to the Pinellas/Pasco County Line): Overall, the surrounding area of Alternate US 19 is diverse in land use. Directly along the corridor, land use consists of industrial, institutional, public/semi-public, recreational, residential, retail/office, and other uses. Also, the Anclote River surrounds Alternate US 19 between Live Oak Street and Anclote Road.



Figure 2.2 Existing Land Use (2014) for Segment A – Belleair Road to Union Street

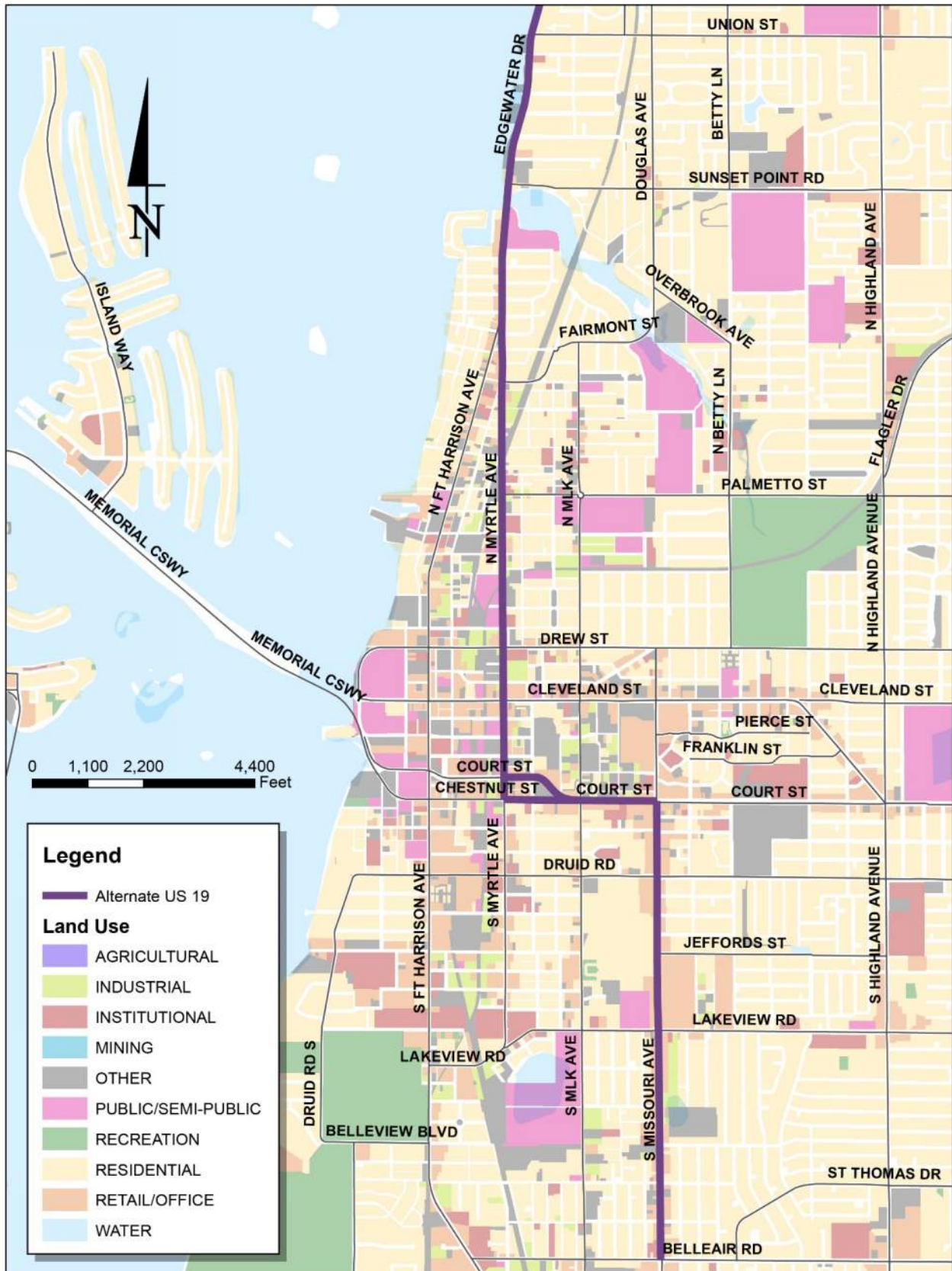




Figure 2.3 Existing Land Use (2014) for Segment B – Union Street to Curlew Road

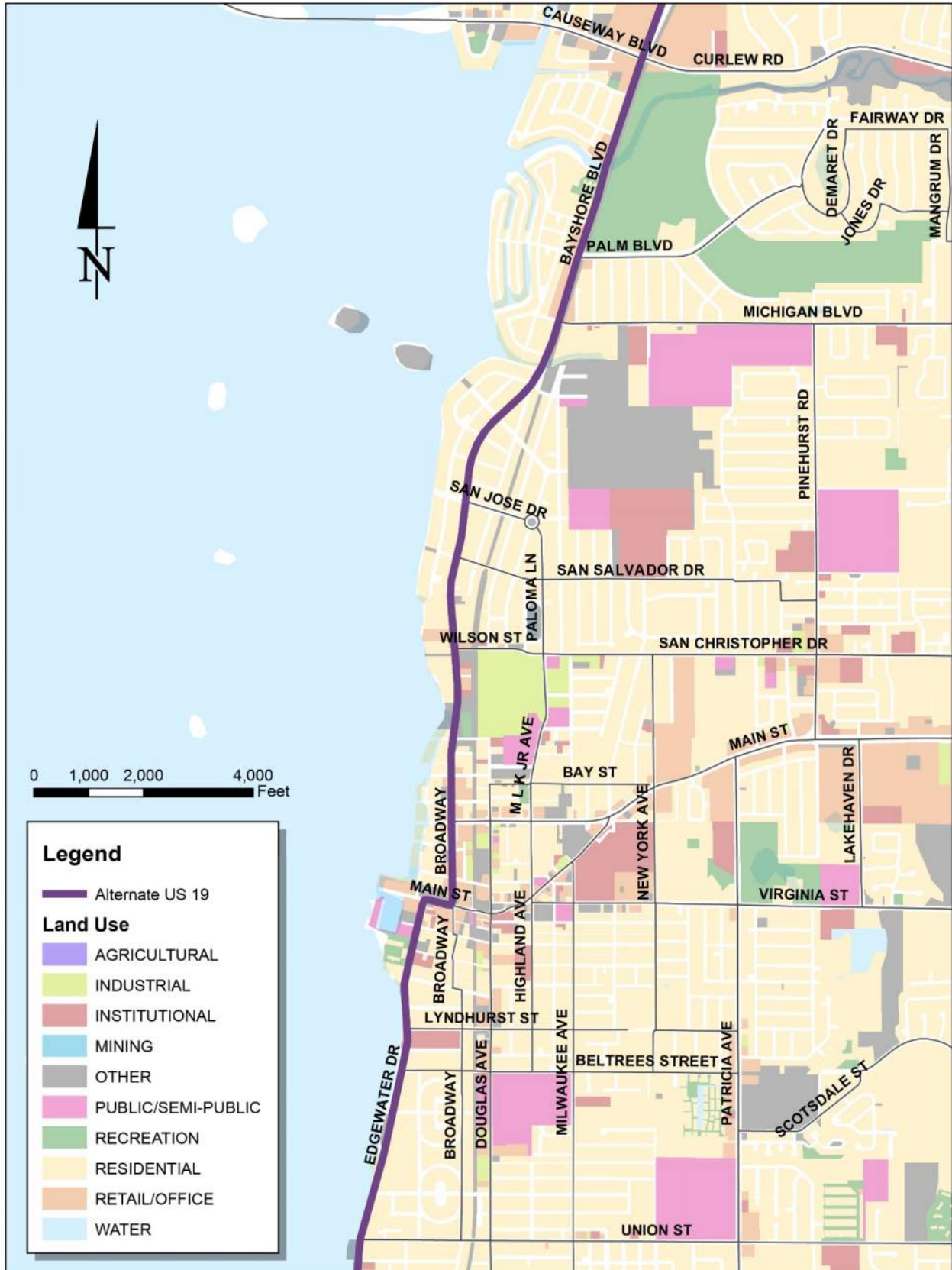


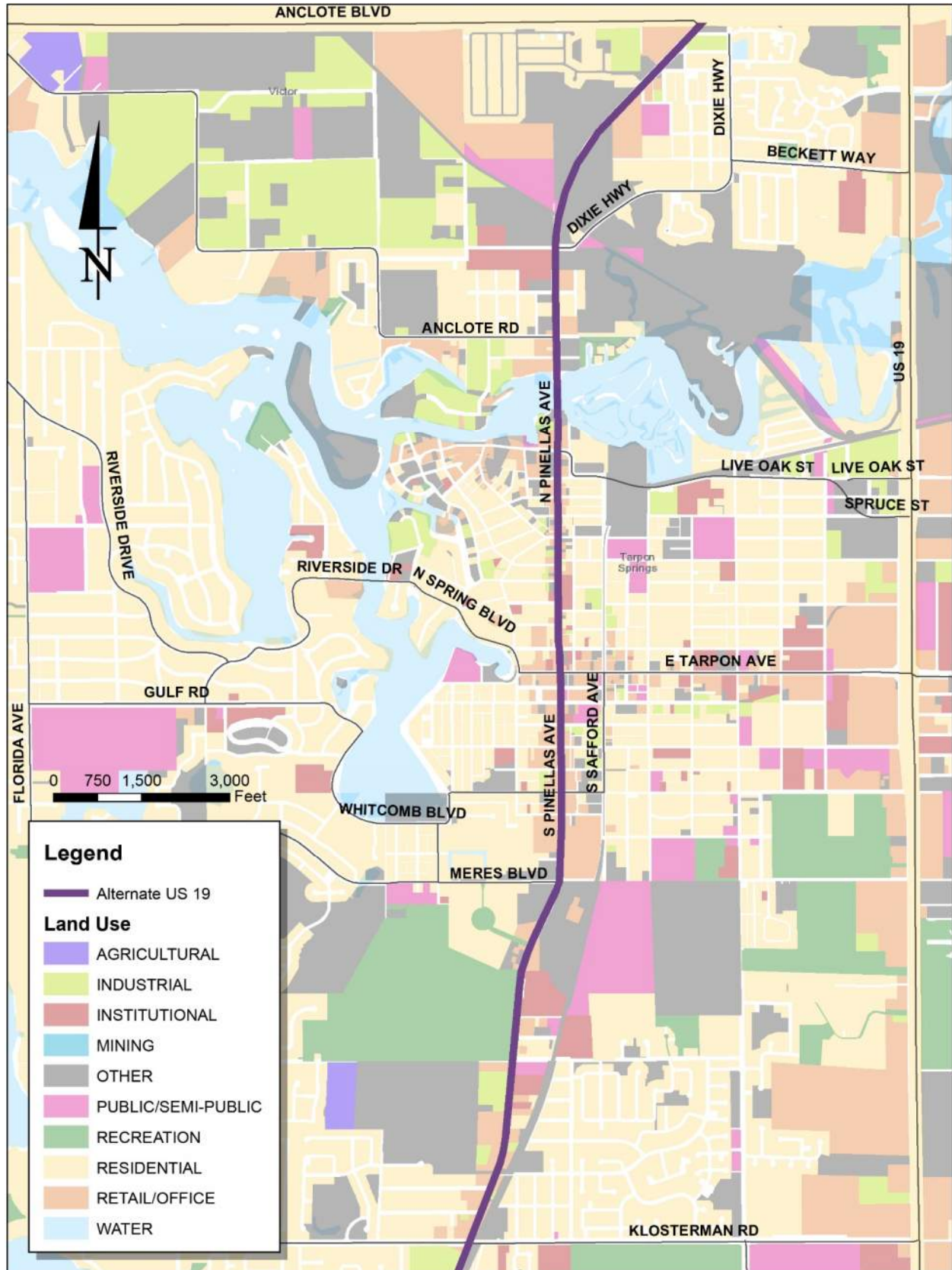


Figure 2.4 Existing Land Use (2014) for Segment C – Curlew Road to Klosterman Road





Figure 2.5 Existing Land Use (2014) for Segment D – Klosterman Road to the Pinellas/Pasco County Line





2.3 Socio-Economic Characteristics

Historical estimates of socio-economic data were obtained from the US Census Bureau for a five-year period from 2010 to 2015 for a one mile buffer around the Alternate US 19 study corridor. The population density and median household income in the study area are shown on **Figure 2.6**. Several segments within Dunedin, Palm Harbor, and Tarpon Springs have a population density lower than the County average. The population density is highest in Downtown Clearwater, followed by southern Dunedin, and some portions of Palm Harbor. Over 58% of the households in the Alternate US 19 corridor are at or below the County average for median income. The highest concentrations of lowest income households (approximately half of the median income) are in the City of Clearwater, east of the corridor in Dunedin, and adjacent to the corridor in Palm Harbor.

The percent of households without access to a vehicle and populations under 18 or over 65 are shown on **Figure 2.7**. The distribution of households without access to a vehicle is similar to areas with low household incomes, with the highest concentration in the City of Clearwater. There is also a high percentage of households with no car in southern Dunedin and in Tarpon Springs. There is a higher concentration of youth (ages 18 and younger) and elderly (ages 65 and older) residents along Alternate US 19 than the rest of the County. Higher concentrations of these populations occur in Dunedin and in a significant portion of Tarpon Springs.

2.4 Crash Data

A *Road Safety Review* was prepared based on the crash data collected from 2011 to 2015 for the Alternate US 19 Corridor Study. A total of 2,602 crashes were reported during the period between 2011 and 2015. **Table 2.1** shows the total number of crashes within the project area separated by crash type, injury severity, and lighting conditions. There were 127 crashes that involved incapacitating injury and 22 crashes that involved a fatality within the project limits over the five year period. Due to the length of the corridor, crash trends and types vary by segment. The highest crash densities were observed along the following segments and intersections of Alternate US 19:

- Belleair Road to north of Turner Street within Segment A (approximately 1.5 miles in length) accounted for 326 (13%) of the total crashes along the entire corridor study area from 2011 to 2015. Crashes involving bicyclists, left turns, pedestrians, right turns, U-turns, fatalities, property damage, and dusk hours were higher than the statewide percentage. There were sixteen pedestrian and eight bicycle related crashes. Six crashes resulted in a fatality, four of which were pedestrian related.
- Court Street and Chestnut Street from Missouri Avenue to Myrtle Avenue within Segment A (approximately 0.70 miles in length) accounted for 466 (18%) of the total crashes along the entire corridor study area from 2011 to 2015. Crashes involving bicyclists, left turns, lost control, sideswipes of vehicles traveling in the same direction, property damage, dark-lighting, and standing or moving water were higher than the statewide percentage. There were four pedestrian and nine bicycle related crashes. One crash resulted in a fatality.
- North of Court Street to north of Marshall Street within Segment A (approximately 1.3 miles in length) accounted for 220 (8%) of the total crashes along the entire corridor study area from 2011 to 2015. Crashes involving bicyclists, left turns, pedestrians, sideswipes of vehicles traveling in the same direction, property damage, dawn hours, and dusk hours were higher than the statewide percentage. There were three pedestrian and six bicycle related crashes. One crash resulted in a fatality.



Figure 2.6 Population Density in Residents Per Acre (Left) and Median Household Income (Right)

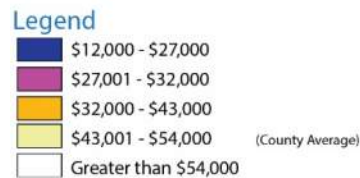
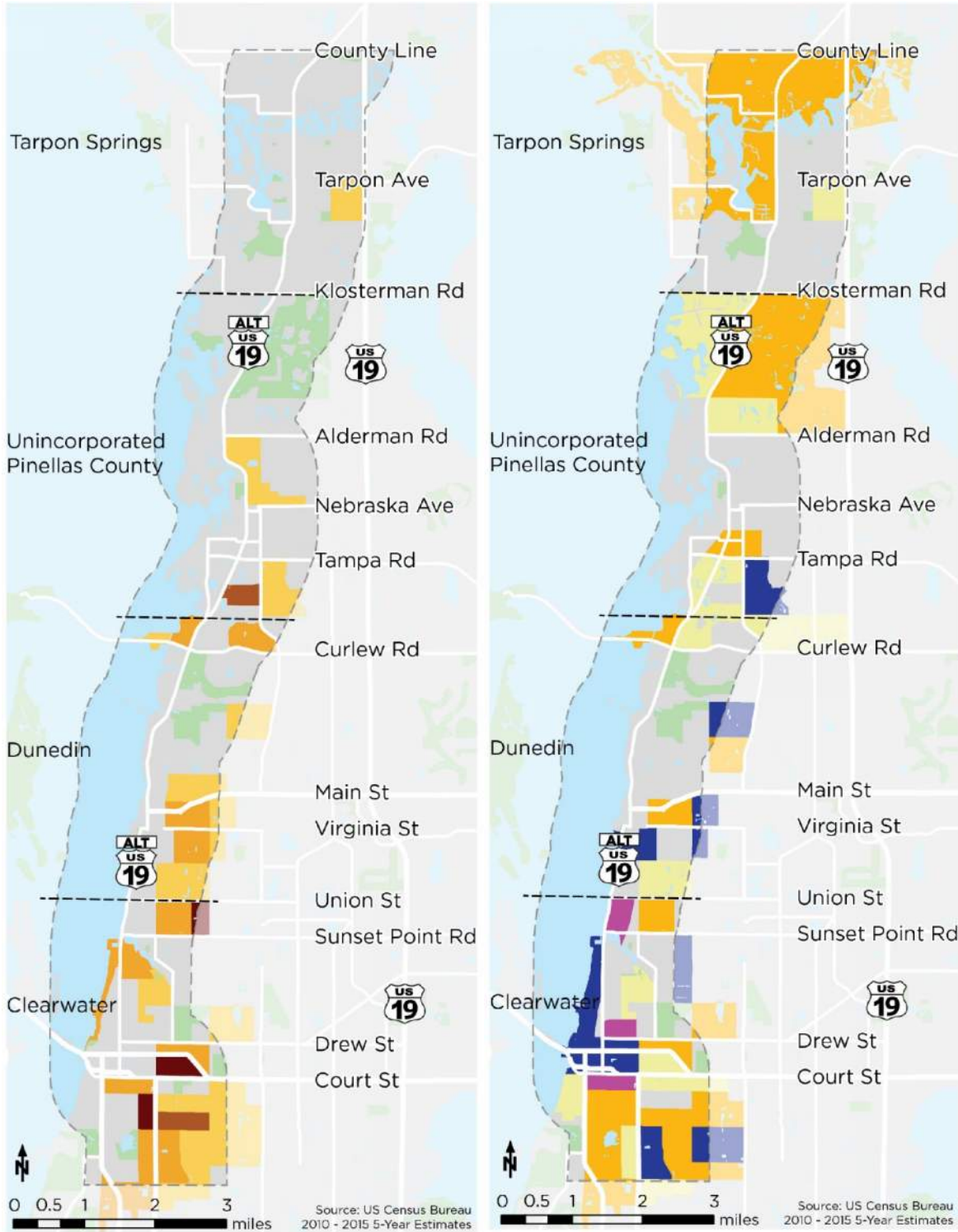




Figure 2.7 Households without Access to a Car (Left) and Population under 18 or over 65 (Right)

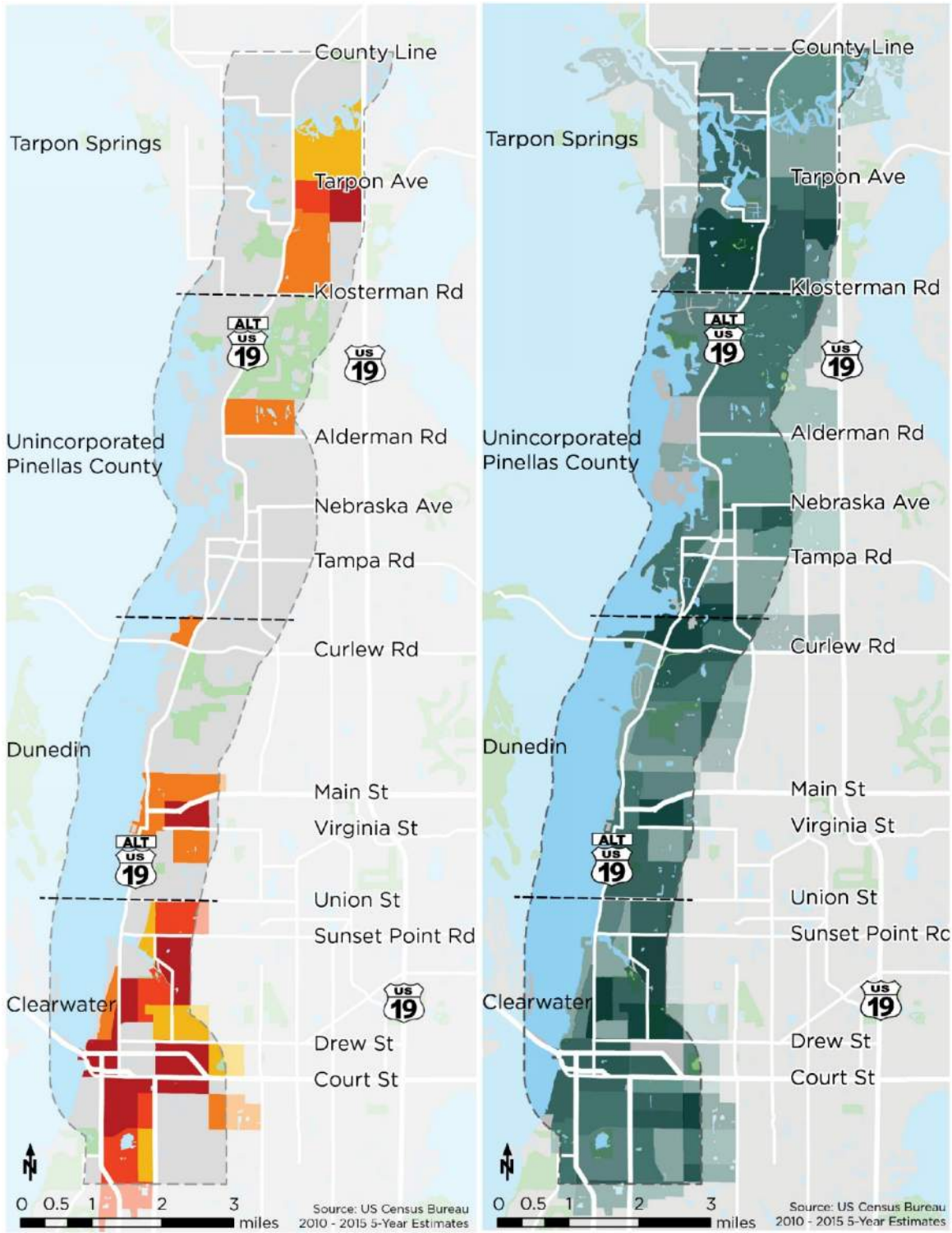




Table 2.1 Summary Crash Data (2011-2015)

Alt US 19 Crash Data	Years					Total Crashes	Average Per Year	Percentage of Total Crashes	Statewide Percentage
	2011	2012	2013	2014	2015				
Crash Type									
Angle	81	99	128	133	140	581	116.2	22.3%	20.7%
Front to Front	12	8	18	25	27	90	18.0	3.5%	2.2%
Front to Rear	141	186	236	229	254	1046	209.2	40.2%	45.1%
Sideswipe, Same Direction	22	38	52	50	57	219	43.8	8.4%	0.0%
Sideswipe, Opposite Direction	8	10	10	13	10	51	10.2	2.0%	0.8%
Rear to Side	0	4	5	4	6	19	3.8	0.7%	-
Rear to Rear	3	4	4	2	2	15	3.0	0.6%	-
Other	56	54	59	65	67	301	60.2	11.6%	17.7%
Unknown	3	4	39	53	102	201	40.2	7.7%	1.2%
No Data	1	29	8	20	21	79	15.8	3.0%	-
Total	327	436	559	594	686	2602	520.4	100.0%	-
Injury Severity									
Fatal	8	3	2	2	7	22	4.4	0.8%	0.8%
Incapacitating	31	21	26	25	24	127	25.4	4.9%	62.3%
Non-incapacitating	51	61	73	52	64	301	60.2	11.6%	
Possible Injury	94	111	92	112	152	561	112.2	21.6%	
None	143	240	366	403	439	1591	318.2	61.1%	37.0%
Total	327	436	559	594	686	2602	520.4	100.0%	-
Lighting Conditions									
Daylight	238	289	378	395	444	1744	348.8	67.0%	69.9%
Dawn	4	5	6	6	2	23	4.6	0.9%	1.6%
Dusk	5	11	21	17	23	77	15.4	3.0%	3.2%
Dark-Lighted	63	98	104	96	100	461	92.2	17.7%	19.7%
Dark-Not Lighted	16	11	17	25	16	85	17.0	3.3%	5.3%
Dark-Unknown Lighting	1	1	2	2	1	7	1.4	0.3%	0.1%
No Data	0	20	0	0	0	20	4.0	0.8%	0.0%
Unknown	0	1	31	53	100	185	37.0	7.1%	0.2%
Total	327	436	559	594	686	2602	520.4	100.0%	-
Pedestrian and Bicycle Crashes									
Pedestrian	11	18	12	19	11	71	14.2	0.5%	1.3%
Bicycle	12	12	23	22	14	83	16.6	0.6%	1.1%
Total	23	30	35	41	25	154	30.8	1.2%	-

- South of Aberdeen Street to north of Skinner Boulevard within Segment B (approximately 1.8 miles in length) accounted for 116 (4%) of the total crashes along the entire corridor study area from 2011 to 2015. Crashes involving backing vehicles, bicyclists, head-on collisions, left turns, sideswipes of vehicles traveling in the opposite direction, right turns, fatalities, dark-lighted hours, and dry conditions were higher than the statewide percentage. There were seven bicycle related crashes. One crash resulted in a fatality.
- The intersection of Alternate US 19 and Curlew Road at the border of Segments B and C accounted for 155 (6%) of the total crashes along the entire corridor study area from 2011 to 2015. Crashes involving bicyclists, left turns, lost control, rear-ends, sideswipes of vehicles



traveling in the opposite direction, property damage, daylight hours, dusk hours, and dry surface conditions were higher than the statewide percentage. There were six bicycle related crashes. No crashes resulted in a fatality.

- The intersection of Alternate US 19 and Tampa Road within Segment C accounted for 98 (4%) of the total crashes along the entire corridor study area from 2011 to 2015. Crashes involving left turns, rear-ends, sideswipes of vehicles traveling in the same direction, right turns, property damage, daylight hours, and dry surface conditions were higher than the statewide percentage. There was one pedestrian and one bicycle related crash. No crashes resulted in a fatality.
- North of Tampa Road to north of New York Avenue within Segment C (approximately 0.95 miles in length) accounted for 75 (3%) of the total crashes along the entire corridor study area from 2011 to 2014. Crashes involving backing vehicles, bicyclists, left turns, lost control, parking lots, pedestrians, sideswipes of vehicles traveling in the opposite direction, right turns, fatalities, dusk hours, dark and not lighted hours, and dry conditions were higher than the statewide percentage. There were four pedestrian and four bicycle related crashes. Ten crashes resulted in a fatality, three of which were pedestrian related.
- North of Crystal Beach Avenue/Crystal Drive to north of Magnolia Avenue within Segment C (approximately 0.50 miles in length), passing through the intersection of Alderman Road, accounted for 220 (8%) of the total crashes along the entire corridor study area from 2011 to 2015. Crashes involving bicyclists, left turns, pedestrians, sideswipes of vehicles traveling in the same direction, property damage, dawn hours, and dusk hours were higher than the statewide percentage. There was one pedestrian and three bicycle related crashes. One crash resulted in a fatality.
- The intersection of Alternate US 19 and Klosterman Road at the border of Segments C and D accounted for 99 (4%) of the total crashes along the entire corridor study area from 2011 to 2015. Crashes involving bicyclists, left turns, rear-ends, fatalities, property damage, daylight hours, and dry surface conditions were higher than the statewide percentage. There was one pedestrian and two bicycle related crashes. One crash resulted in a fatality, which was pedestrian related.

Based on unit costs from the National Safety Council *Estimating the Costs of Unintentional Injuries, 2015*, the economic loss, or cost to society of these crashes, is estimated to be approximately \$408.6 million over the 5 year period, as shown in **Table 2.2**.

Table 2.2 Estimated Economic Loss from Crashes

Crash Type	Estimated 2015 Unit Cost	Estimated Number 2011 thru 2015	Economic Loss
Fatality	\$10,120,000	22	\$222,640,000
Severe Injury (Incapacitating)	\$574,080	127	\$72,908,160
Moderate Injury (Non-incapacitating)	\$155,480	301	\$46,799,480
Minor Injury (Possible Injury)	\$96,600	561	\$54,192,600
Property Damage Only (None)	\$7,600	1591	\$12,091,600
Total	-	2602	\$408,631,840



2.5 Traffic Operational Analyses

A *Design Traffic Technical Memorandum* (DTTM) was prepared based on the existing and future traffic volumes anticipated for the Alternate US 19 corridor. Intersection operational analysis was conducted for 33 study intersections along Alternate US 19 from Belleair Road to the Pinellas/Pasco County line. The results of the existing year (2017) and design year (2040) overall intersection analyses for the AM and PM peak hours under the existing conditions are shown in **Table 2.3**.

Table 2.3 Overall Intersection Operational Analysis

Segment	Alternate US 19 Intersection	Existing Year (2017)				Design Year (2040)			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)
A	Belleair Rd	D	39.9	D	47.8	E	56.9	E	67.9
	Lakeview Rd	D	40.5	D	42.0	D	42.4	D	44.0
	Clearwater Plaza	C	32.5	C	31.3	C	33.1	C	31.8
	Druid Rd	D	37.3	D	38.3	D	38.3	D	39.3
	Court St (at Missouri Ave)	F	133.5	F	83.0	F	185.2	F	120.9
	MLK Jr. Ave	C	33.1	D	40.6	D	49.5	E	59.0
	Court St (at Myrtle Ave)	C	29.3	C	24.1	C	30.4	C	27.2
	Chestnut St	B	19.6	C	33.0	C	23.7	C	34.2
	Cleveland St	A	10.0	B	12.5	B	13.4	B	13.5
	Drew St	D	36.1	C	24.3	D	48.0	C	27.3
	Seminole St	A	3.0	A	2.7	A	3.2	A	2.8
	Palmetto St	A	2.5	A	2.0	A	2.5	A	2.1
	Marshall St	A	9.9	A	7.8	B	10.3	A	8.2
	Fairmont St	B	13.2	B	13.2	B	17.1	B	14.8
Sunset Pt	B	12.6	A	8.1	B	16.0	A	9.0	
B	Marina Plaza	D	30.2	A	8.2	F	56.4	B	12.1
	Main St	C	30.8	F	87.4	C	33.2	F	117.6
	Skinner Blvd	D	47.0	D	40.4	E	60.5	D	49.9
	Michigan Blvd	B	10.2	B	17.4	B	10.6	B	20.0
	Palm Blvd	B	19.5	B	18.0	C	23.6	B	19.8
	Curlew Blvd	E	77.8	E	70.3	F	93.0	F	82.9
C	Tampa Rd	E	62.1	E	70.0	E	77.0	F	85.4
	Illinois Ave	A	2.2	A	2.2	A	3.2	A	3.1
	Alderman Rd	C	32.8	C	27.4	D	41.3	D	36.0
	Klosterman Rd	F	112.4	F	102.2	F	128.6	F	115.8
D	Florida Hospital	B	12.5	D	30.5	E	42.0	F	116.7
	Meres Blvd	C	26.6	C	25.6	E	64.8	D	53.2
	MLK Jr. Dr	C	29.1	C	26.1	D	38.9	D	51.4
	Lemon St	A	6.2	A	6.3	A	5.0	A	6.1
	Tarpon Ave	C	20.4	D	43.7	C	23.7	F	89.3
	Orange St	B	11.0	B	10.9	B	11.9	B	11.3
	Dodecanese Blvd	C	21.2	C	23.6	D	36.4	C	27.1
Anclote Blvd	B	15.6	B	13.4	C	27.0	B	17.9	



It was found that five of the study intersections currently do not meet the adopted LOS standard D. The deficient intersections in the existing year (2017) are located at:

- Segment A (Belleair Road to Union Street): There is one deficient intersection.
 - Court Street and Missouri Avenue in the AM and PM peak hours.
- Segment B (Union Street to Curlew Road): There are two deficient intersections.
 - Main Street in the PM peak hour.
 - Curlew Road in the AM and PM peak hours.
- Segment C (Curlew Road to Klosterman Road): There are two deficient intersections.
 - Tampa Road in the AM and PM peak hours.
 - Klosterman Road in the AM and PM peak hours.

Assuming that no improvements are made to the Alternate US 19 study corridor, an additional seven intersections are expected to not meet the LOS standard D by the design year (2040). The additional deficient intersections in the design year (2040) are located at:

- Segment A (Belleair Road to Union Street): There are two additional deficient intersections.
 - Belleair Road in the AM and PM peak hours.
 - Martin Luther King Jr. Avenue in the PM peak hour.
- Segment B (Union Street to Curlew Road): There are two additional deficient intersections.
 - Marina Plaza in the AM peak hour.
 - Skinner Boulevard in the AM peak hour.
- Segment D (Klosterman Road to the Pinellas/Pasco County Line): There are three additional deficient intersections.
 - Florida Hospital in the AM and PM peak hour.
 - Meres Boulevard in the AM peak hour.
 - Tarpon Avenue in the PM peak hour.

2.6 Pedestrian and Bicycle Facilities

Of the 2,602 crashes reported from 2011 to 2015 in **Section 2.4**, there was a total of 83 bicycle and 71 pedestrian related crashes. The statewide percentage for bicycle and pedestrian related crashes for similar facility types is 1.1% and 1.3%, respectively. **Table 2.4** summarizes those segments and intersections along Alternate US 19 that experienced a higher frequency of bicycle and pedestrian related crashes than the statewide percentage.

There are provisions for pedestrians and bicyclists on numerous segments of Alternate US 19 and on the Pinellas Trail, which is in close proximity to Alternate US 19. Except for the northernmost portion of Segment D, accommodations are made for pedestrians for the entire study corridor with 4 to 10-foot sidewalks from Belleair Road to the Anclote River. Bicyclists can travel on designated bicycle lanes on only Alternate US 19 (Court Street) with 4-foot bike lanes from Missouri Avenue to Myrtle Avenue within Segment A. Pedestrians and bicyclists also have the option to travel within close proximity to Alternate US 19 along the Pinellas Trail. The Pinellas Trail follows the general path of Alternate US 19 from Belleair Road to Pine Street, at which point it begins to veer east in Segment D. Before veering east, the maximum distance between the Pinellas Trail and Alternate US 19 is approximately 4,100 feet, with portions traveling directly alongside Alternate US 19. Those roadway segments which the Pinellas Trail travels alongside Alternate US 19 are from Michigan Boulevard to the Pinellas Trail Crossing (Segments B and C) and from Michigan Avenue to Sutherland Bayou Park (Segment C).



Table 2.4 High Pedestrian and Bicycle Crashes (2011-2015)

Segment	Alternate US 19 Location	Total Crashes	Crash Type	Number of Crashes	Percentage
A	Belleair Rd to North of Turner St	326	Bicycle	6	1.8%
			Pedestrian	17	5.2%
	North of Turner St to South of Franklin St	466	Bicycle	9	1.9%
	South of Franklin St to North of Marshall St	220	Bicycle	6	2.7%
			Pedestrian	3	1.4%
B	South of Aberdeen St to North of Skinner Blvd/Tilden St	116	Bicycle	7	6.0%
	Causeway Blvd/Curlew Rd	155	Bicycle	6	3.9%
C	North of Tampa Rd to North of New York Ave	75	Bicycle	4	5.3%
			Pedestrian	4	5.3%
	North of New York Ave to Crystal Beach Ave/Crystal Dr	52	Bicycle	2	3.8%
			Pedestrian	2	3.8%
	North of Crystal Beach Ave/Crystal Dr to North of Magnolia Ave	105	Bicycle	3	2.9%
	Klosterman Rd	99	Bicycle	2	2.0%

2.7 Transit Facilities and Ridership

Currently, there are ten Pinellas Suncoast Transit Authority (PSTA) bus routes and one Pasco County Public Transportation (PCPT) bus route that travel along some portion of Alternate US 19 within the study area, as shown on **Figure 2.8**. However, transit ridership does not mimic that of the vulnerable populations present along the corridor. Generally, vulnerable populations are more likely to use public transit as a regular means of transportation. Vulnerable populations include those with a low household income, without access to a personal vehicle, younger than 18, and greater than 65. Clearwater (Segment A), northern Dunedin (Segment B), Palm Harbor (Segment C), and some of Downtown Tarpon Springs (Segment D) contain a greater proportion than the countywide average of vulnerable populations that live and/or work along the Alternate US 19 study corridor. This leads to the assumption that transit accommodations are not easily accessible and/or do not contain acceptable connectivity throughout the entire corridor.

Figure 2.9 illustrates the correlation between vulnerable populations and ridership along the Alternate US 19 study corridor. Clearwater (Segment A), which contains a high proportion of vulnerable populations, is the only area of the corridor that exhibits a high level of transit ridership. Northern Dunedin (Segment B), southern Palm Harbor (Segment C), and Downtown Tarpon Springs (Segment D) exhibit moderate transit ridership, northern Palm Harbor (Segment C) exhibits low ridership, and Downtown Dunedin (Segment B) exhibits no transit ridership.



Figure 2.8 Bus Routes Along Alternate US 19

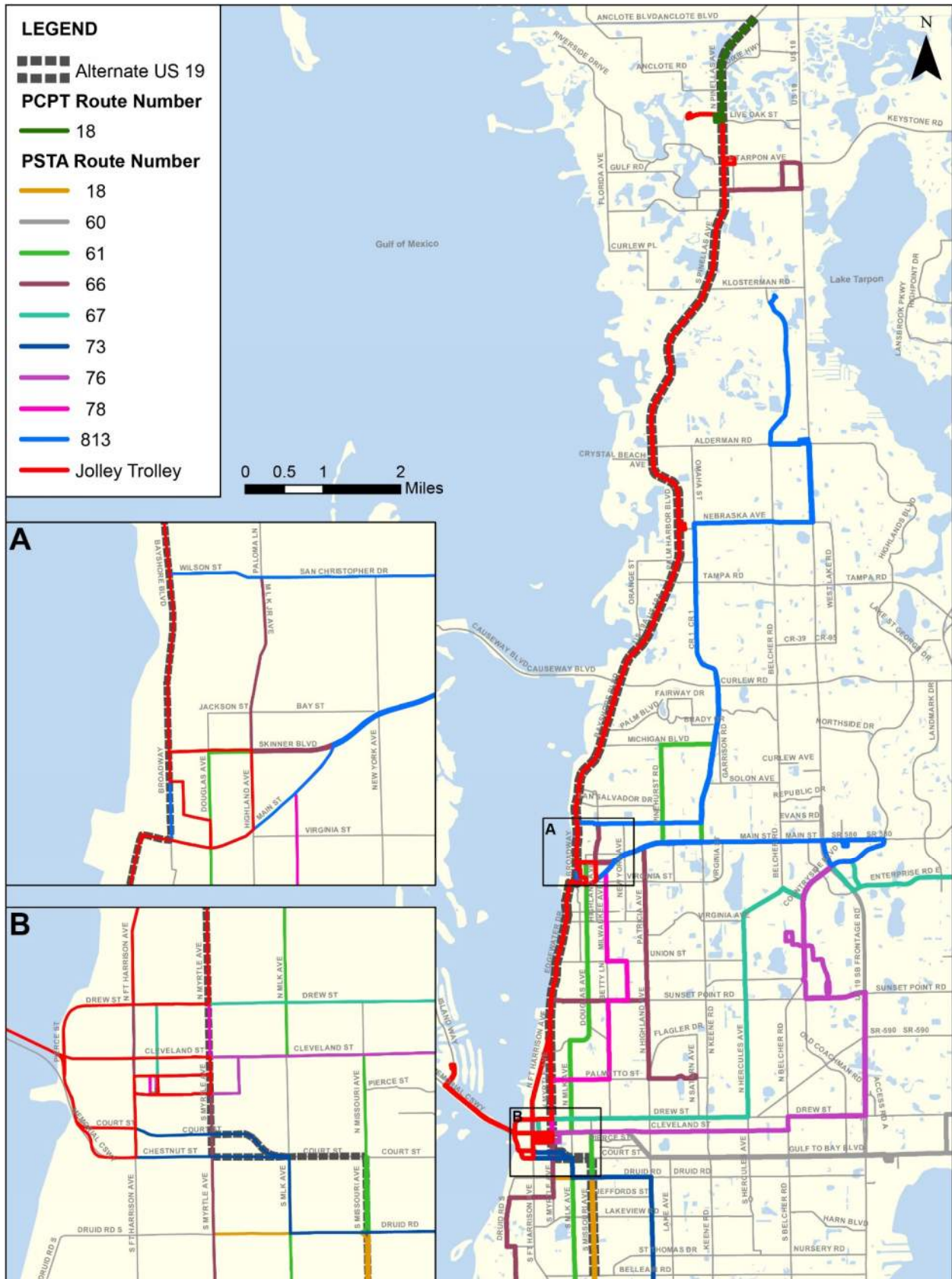
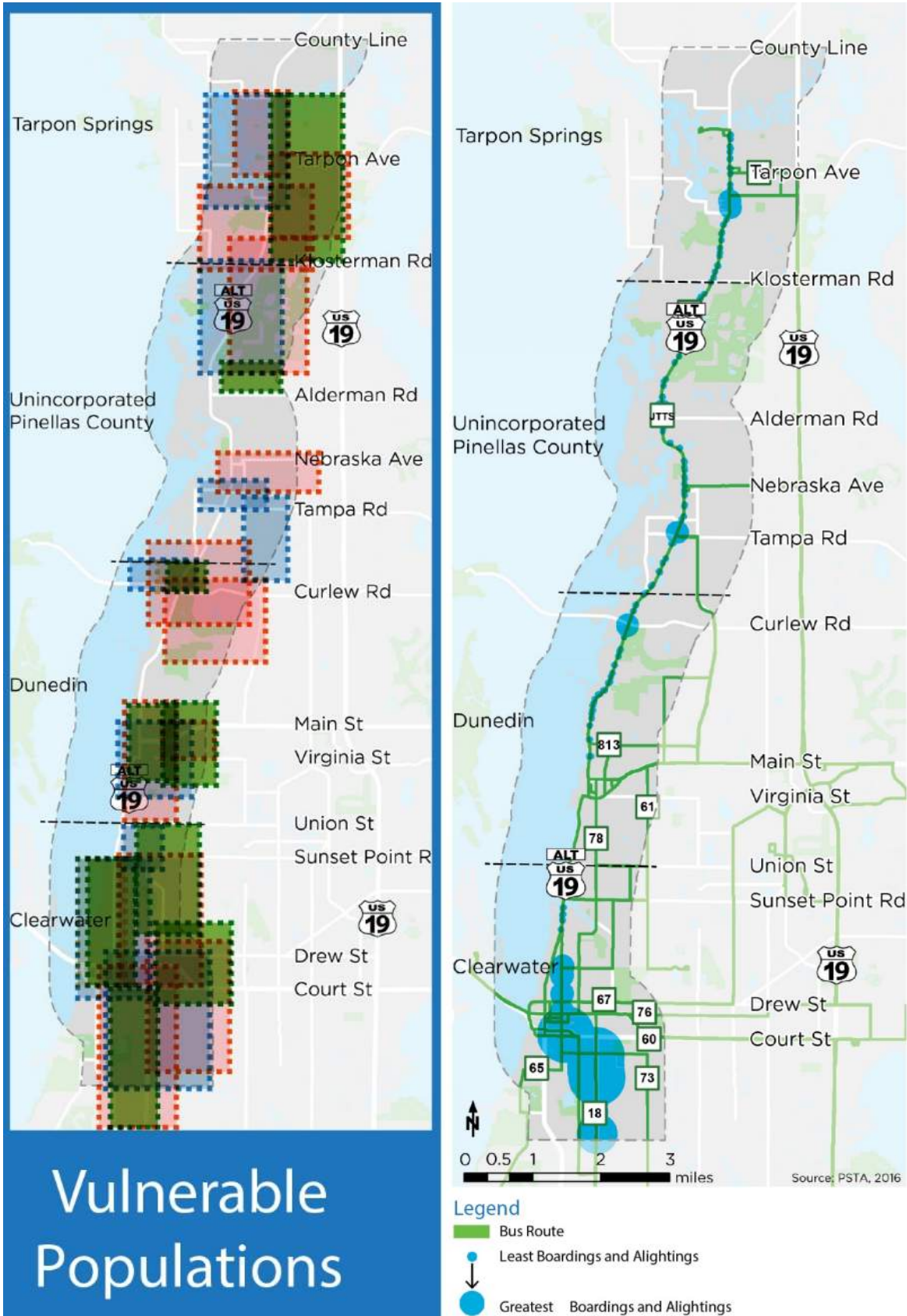




Figure 2.9 Vulnerable Populations and Transit Ridership





2.8 Drainage and Floodplains

The Alternate US 19 (SR 595) study area is in Pinellas County within the jurisdiction of the Southwest Florida Water Management District (SWFWMD). Pinellas County is located next to the Gulf of Mexico along the west coast of Florida. The topography in the study corridor is relatively flat with elevations ranging from a high of 70 feet at the beginning of the study corridor at Belleair Road to a low elevation of less than 5 feet at Stevenson Creek within Segment A, Cedar Creek and Curlew Creek within Segment B, and the Anclote River within Segment D. Flow is generally from east to west.

The corridor crosses the following Pinellas County Watersheds, from south to north:

- Stevenson Creek within Segment A
- Coastal Zone 1 within Segment A
- Coastal Zone 4 within Segments A and B
- Clearwater Harbor North within Segments B and C
- Cedar Creek within Segment B
- Curlew Creek within Segments B and C
- Smith Bayou within Segment C
- Sutherland Bayou within Segment C
- Klosterman Bayou within Segments C and D
- Anclote River within Segment D

Each of the watersheds has a unique Water Body Identification number (WBID) as defined by the Florida Department of Environmental Protection (FDEP). FDEP uses water quality data from a wide variety of sources, including its own monitoring programs, to regularly assess Florida's WBIDs to determine whether they meet publicly adopted water quality standards. WBIDs that do not meet the standards set for them are determined to be "impaired" and in need of restoration. On the current FDEP 303(d) Impaired Waters List, Curlew Creek (WBID 1538) within Segment B is verified as impaired for nutrients; Klosterman Bayou (WBID 1508) within Segment C and the Anclote River (WBID 1440A) within Segment D are both verified as impaired for dissolved oxygen (DO). Pollutant loading analysis will be required for any direct discharge to these three WBIDs. In addition, portions of the study corridor discharge directly into the Pinellas County Aquatic Preserve which is designated as Outstanding Florida Waters (OFW). SWFWMD requires an additional 50% treatment volume for any direct discharge into OFW.

Drainage along the existing roadway is accomplished through collection and conveyance by curb and gutter and closed storm drain systems from the beginning of the study area to just north of Cedar Creek within Segment B. From Cedar Creek to just south of Meres Boulevard within Segment D, open roadside ditches, side drains, ditch bottom inlets and cross drains collect and convey stormwater runoff to the various outfalls. A curb and gutter/storm drain system begins again just south of Meres Boulevard and continues to north of the Anclote River Bridge within Segment D. From this point to the Pasco County line, the roadway is drained by open roadside ditches. The roadside ditches and depressional areas provide some degree of attenuation and water quality treatment. The runoff in the ditches is co-mingled with offsite runoff and ultimately conveyed to the outfall.

Existing cross drains were located based on straight line diagrams, existing construction plans, United States Geological Survey (USGS) Quadrangle Maps, Flood Insurance Rate Maps (FIRMs) and field investigations. There are 14 cross drains and 4 bridge structures within the study limits as listed in



Table 2.5. In addition to the major cross drains, there are numerous side drains, ditch bottom inlets, curb inlets and manholes.

Table 2.5 Cross Drains

Segment	Mile Post	Type	Bridge Number/ Culvert Size	Crossing
A	1.521	Bridge	150173	Stevenson Creek
B	2.860	Concrete Box Culvert	7' x 4'	-
	3.795	Concrete Box Culvert	4' x 4'	-
	4.926	Concrete Bridge	150045	Cedar Creek
	5.549	Bridge	150046	Curlew Creek
C	6.691	Concrete Culvert	(2) - 42"	-
	7.431	Concrete Box Culvert	10' x 4'	-
	11.802	Concrete Culvert	(3) - 24"	-
	11.145	Concrete Culvert	24"	-
D	12.090	Corrugated Metal Pipe (CMP)	14" x 23"	-
	12.700	Concrete Culvert	24"	-
	13.990	Bridge	150006	Anclote River
	14.194	Concrete Culvert	24"	-
	14.401	Concrete Culvert	24"	-
	14.406	Concrete Culvert	(3) - 30"	-
	14.418	Concrete Culvert	(2) - 30"	-
	14.520	Concrete Culvert	24"	-
	15.100	Concrete Culvert	24"	-

The Federal Emergency Management Agency (FEMA) has designated locations of the 100-year base floodplain within the project corridor on the FIRMs for Pinellas County as listed in **Table 2.6**. The study corridor crosses the following flood zones:

- Zone X Areas determined to be outside the 500-year floodplain
- Zone X (shaded) Areas of 500-year flood
- Zone A Special flood hazard area inundated by the 100-year flood with **no** base flood elevations determined
- Zone AE Special flood hazard area inundated by the 100-year flood with base flood elevations determined
- Zone VE Coastal flood with velocity hazard (wave action); base flood elevations determined

Table 2.6 FEMA FIRM Summary

Segments	Map Number	Date
A	12103C0108H	May 17, 2005
A and B	12103C0106H	May 17, 2005
B	12103C0068G	September 3, 2003
B	12103C0066G	September 3, 2003
B and C	12103C0067G	September 3, 2003
C	12103C0059G	September 3, 2003
C and D	12103C0057G	September 3, 2003
D	12103C0019G	September 3, 2003
D	12103C0017G	September 3, 2003



Encroachment (fill) into Zone A and Zone AE (100-year base floodplain) will require compensation per FDOT and SWFWMD criteria. Section 3.3 of the SWFWMD Environmental Resource Permit (ERP) Applicant’s Handbook Volume II (10/1/2013) states “No net encroachment into the floodplain, up to that encompassed by the 100-year event, which will adversely affect either conveyance, storage, water quality or adjacent lands, will be allowed. Any required compensating storage shall be equivalently provided between the seasonal high water level and the 100-year flood level to allow storage to function during all lesser flood events.” Compliance with “Historic Basin Storage” (Section 3.7, ERP) and “Offsite Lands” (Section 3.8, ERP) criteria will also be necessary. The study corridor crosses the 100-year base floodplain, as detailed in **Table 2.7**.

Table 2.7 Base Floodplain Impacts

Segments	Floodplain Impact No.	FEMA Flood Zone	EL (ft., NAVD 88)	Remarks
A	F-1	A	-	-
	F-2	AE	11, 12, 13	-
	F-3	AE	12, 13	-
B	F-4	AE	13	-
	F-5	AE	11, 12, 13	-
	F-6	AE	11, 12, 13	-
B and C	F-7	AE	11, 12, 13	Curlew Creek (Floodway)
C	F-8	AE	11	-
	F-9	AE	11	-
	F-10	AE	11, 12	-
	F-11	AE	10	-
	F-12	AE	10	-
	F-13	AE	11, 12	-
	F-14	AE	10, 12	-
C and D	F-15	AE	10	-
D	F-16	AE	10	-
	F-17	AE	10	-
	F-18	AE	9, 10	Anclote River (Floodway)

In addition, the Curlew Creek within Segment B and Anclote River within Segment D crossings are each classified as a “Regulatory Floodway”. A “Regulatory Floodway” refers to the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Communities must regulate development in these floodways to ensure that there are no increases in upstream flood elevations; therefore, a FEMA No-Rise Certification will be required during the design phase for these two crossings.

2.9 Context Classifications

The FDOT Context Classification system broadly identifies the various built environments existing in Florida. The FDOT Context Classification serves as a basis for design criteria. According to the August 2017 FDOT *Context Classification Handbook*, a roadway segment must meet a majority of the primary measures defined for a context classification in order to be assigned that context classification. In accordance with the methodologies presented in the handbook, land use, building height, building placement, fronting uses, location of off-street parking, intersection density, block perimeter, and block length were evaluated for the study corridor. **Table 2.8** summarizes the context classification for the various segments of Alternate US 19 from Belleair Road to the Pinellas/Pasco County line.



Table 2.8 Context Classification

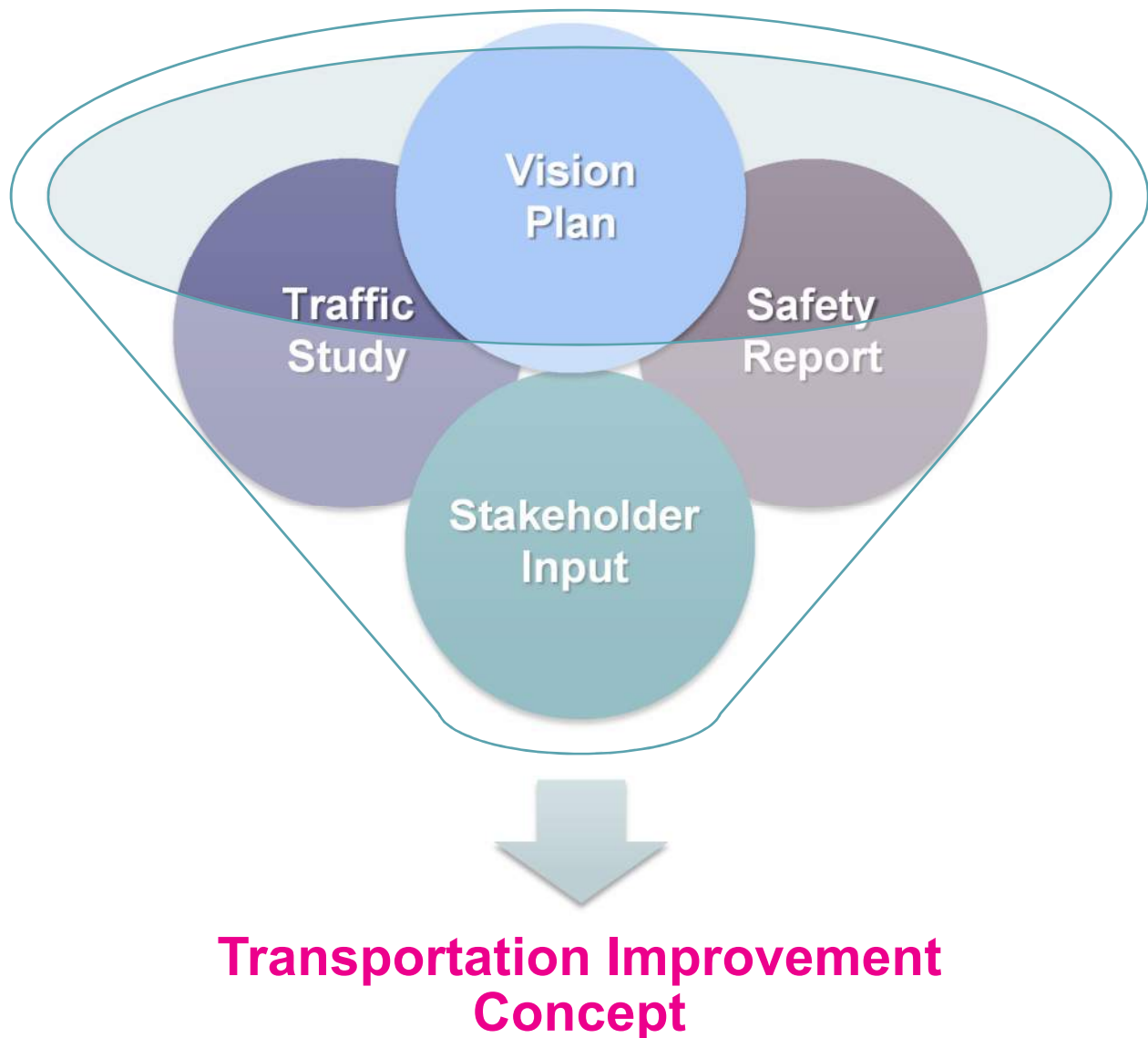
Location	Primary Measures								Proposed Context Classification
	Land Use	Building Height (Stories)	Building Placement	Fronting Uses	Location of Off-Street Parking	Intersection Density (Intersections per Square Mile)	Block Perimeter (ft)	Block Length (ft)	
Belleair Rd to Court St (at Missouri Ave)	Commercial, Multi-Family Residential	1 to 2, some taller	Detached and attached buildings with shallow to medium setbacks	Yes	Mostly in side or rear, occasionally in front	259	2,463	620	C4 – Urban General
Court St (at Missouri Ave) to Drew St	Commercial, Institutional, Multi-Family Residential	1 to 2, some taller	Detached with some attached buildings with shallow to medium setbacks	Yes	Mostly in side or rear, occasionally in front	364	1,400	300	C5 – Urban Center
Drew St to President St	Commercial, Institutional, Single-Family Residential	1 to 2, some taller	Detached buildings with shallow to medium setbacks	No	Mostly in side or rear, occasionally in front	231	1,450	365	C4 – Urban General
President St to Michigan Blvd	Single-Family Residential, Commercial, Open Space	1 to 2, some taller	Detached buildings with shallow to medium setbacks	Yes	Mostly in front or side	220	1,753	438	C4 – Urban General
Michigan Blvd to Virginia Ave	Office, Single-Family Residential, Commercial, Light Industrial	1 to 2, some 3	Detached buildings with medium to large setbacks	No	Mostly in front or side	96	3,300	1,100	C3C – Suburban Commercial
Virginia Ave to Delaware Ave	Office, Neighborhood Commercial, Multi-Family Residential	1 to 2, some 3	Detached and attached buildings with no, shallow, or medium front setbacks	No	Mostly in front or side, occasionally in rear	133	1,200	350	C4 – Urban General
Delaware Ave to Meres Blvd	Single-Family Residential, Multi-Family Residential, Light Industrial, Office, Commercial	1 to 3, some taller	Both detached and attached buildings with medium to large setbacks	No	Mostly on the side, occasionally in front or rear	65	3,380	843	C3C – Suburban Commercial
Meres Blvd to Coquina Dr	Commercial	1 to 2, some taller	Both detached and attached buildings with no, shallow, or medium setbacks	Yes	Mostly on the side, occasionally in front or rear	277	1,670	320	C4 – Urban General
Coquina Dr to Anclote Blvd	Conservation Land, Commercial	1 to 2	Detached buildings with no consistent pattern of setbacks	No	N/A	57	N/A	N/A	C2 - Rural



3 Alternatives Development

The development of the alternative improvements for the Alternate US 19 Corridor Study from Belleair Road to the Pinellas/Pasco County line is based on identifying improvements that may remedy existing safety and traffic operational issues, as well as feedback received from the public and key stakeholders regarding various transportation mobility wants and needs along the corridor. The following sections and **Figure 3.1** summarize the alternative development process and key information related to each of the identified alternatives. For each alternative, there are possible combinations of standalone projects which could be implemented to help meet the vision established for the Alternate US 19 study corridor. The costs associated with each of the alternatives in their entirety are described in subsequent sections.

Figure 3.1 Alternatives Development





3.1 Nodal Analysis

As a part of the overall corridor vision plan, a series of locations were evaluated to analyze how the investment in the roadway infrastructure could benefit specific nodes along the corridor. Many of the transportation issues in the corridor cannot be purely solved by modifications to Alternate US 19, they will require longer term, contextual based solutions. Traditionally, spatial response to investment in roadway infrastructure has been reactive: widening a road increases capacity for both existing and future trips and land uses respond by facilitating the automotive-only based end user. Over time, this creates a series of land uses that are completely dependent on automotive access and therefore limited to shifts in market demand for products that capitalize on a multitude of mode choices including places to walk, bike, and play. Understanding that there can be a positive relationship between land uses and transportation solutions is the foundation for a proactive spatial response to investment in roadway infrastructure and ultimately, a much more efficient use of transportation funding and implementation.

The nodal analysis examines interim and long-term scenarios for land use redevelopment surrounding specific intersections of regional roadways and Alternate US 19. The analysis is NOT a plan recommendation, but rather a vision for the corridor that illustrates how supportive development patterns can influence the transportation solutions along Alternate US 19.

3.1.1 Approach and Methodology

The nodal areas were selected through a series of screening steps including:

1. Areas identified during the Corridor Visioning Public Meetings;
2. Areas that have not been previously studied or are included in Community Redevelopment Areas (CRA) or special overlay districts;
3. Areas that were shown as vacant or publicly-owned; and finally
4. Areas that showed as low utilization, where the building value is roughly 40% of the combined land value and building value. In these areas, there is a lower likelihood that a potential developer will reuse the existing buildings, opting for demolition and redesigning the site plan.

Following this screening process, the Study Team engaged with each municipality to refine to one nodal area within each municipality. The meetings related that each municipality has been facing issues related to impacts to residential from expanded roadways and land uses, demand for new development, lack of connections between neighborhoods, impacts to traffic, and environmental impacts. Generally, each municipality saw opportunities for flexibility in outparcels, examining existing parking lots for connectivity, developing more robust complete streets, overlapping with existing transit service to build on the transit-oriented development scenarios, and potentials to encourage density through policy.

3.1.2 Nodal Areas

The four nodal analysis sites that were reviewed for the Alternate US 19 corridor are:

- Missouri Avenue near Lakeview Road in Clearwater;
- Bayshore Boulevard near Curlew Road in Dunedin;
- Palm Harbor Boulevard near Tampa Road in Palm Harbor; and
- South Pinellas Avenue near Meres Boulevard in Tarpon Springs.



For each nodal site, the Study Team conducted a review of existing land use conditions, along with transit and demographic makeup and developed illustrative concepts of potential future land use scenarios. Two future scenarios were developed for each area: an interim, short-term scenario, and longer-term development scenario.

3.2 Safety Analysis

A *Road Safety Review* was prepared based on the crash data collected from 2011 to 2015 for the Alternate US 19 Corridor Study. Various segment and spot intersection improvements have been proposed in order to mitigate some of the safety concerns along the corridor.

3.2.1 Segment Improvements

Several safety concerns have been identified along the study corridor, ranging from the need for lighting to lack of pedestrian and bicycle accommodations. **Table 3.1** identifies potential improvements that can aid in the increased safety of all users along various segments of the Alternate US 19 corridor from Belleair Road to the Pinellas/Pasco County line.

Table 3.1 Safety Related Segment Improvements

Segment	Alternate US 19 Location	Issue/Observation	Improvement
A	Belleair Road to Court Street	There is a low average annual daily traffic (AADT) south of Lakeview Drive.	<ol style="list-style-type: none"> 1. Reduce the number of lanes. 2. Install bicycle lanes.
	Court Street and Chestnut Street	There is a high frequency of pedestrian and bicycle related crashes.	<ol style="list-style-type: none"> 1. Install “Turning Vehicles Must Yield to Pedestrians” signs at all approaches of the signalized intersections.
	Drew Street to Marshall Street	There is a low AADT from Drew Street to Marshall Street.	<ol style="list-style-type: none"> 1. Reduce the number of lanes. 2. Install bicycle lanes. 3. Install bus bays. 4. Consider roundabouts at current traffic signals.
C	Tampa Road to North of New York Avenue	There is a high frequency of angle, left turn, and sideswipe crashes.	<ol style="list-style-type: none"> 1. Replace TWLT lanes with raised medians.
		There is a high frequency of pedestrian and bicycle related crashes during dark conditions.	<ol style="list-style-type: none"> 1. Install shared-use paths or buffered bicycle lanes. 2. Install lighting.
		There is a high frequency of crashes involving older drivers.	<ol style="list-style-type: none"> 1. Provide advance warning signs for unsignalized intersections. 2. Increase letter height of roadway signs.
	North of New York Avenue to Crystal Beach Avenue/ Crystal Avenue	Many drivers speed and pass in the TWLT lane.	<ol style="list-style-type: none"> 1. Replace TWLT lanes with raised medians.
		There is a high frequency of crashes during non-daylight time periods.	<ol style="list-style-type: none"> 1. Conduct a feasibility study for installing lighting.
	North of Crystal Beach Avenue/ Crystal Avenue to North of Magnolia Avenue	There is a high frequency of angle and left turn crashes.	<ol style="list-style-type: none"> 1. Install a raised median.
There is a high frequency of nighttime crashes.		<ol style="list-style-type: none"> 1. Conduct a feasibility study for installing lighting. 	



3.2.2 Spot Intersection Improvements

Safety concerns have been identified at several intersections along the corridor. Some improvements involve light effort, such as add retro-reflective backplates to the signal heads, and others require complete reconstruction of the intersection, such as the installation of a roundabout. **Table 3.2** identifies potential improvements that can aid in the increased safety of all users at various spot locations along the Alternate US 19 corridor from Belleair Road to the Pinellas/Pasco County line.

Table 3.2 Safety Related Spot Improvements

Segment	Alternate US 19 Location	Issue/Observation	Improvement
A	Belleair Road	The crosswalks are skewed.	1. Realign the crosswalks.
		There is a high frequency of crashes involving southbound left turn and northbound through vehicles.	1. Install a flashing yellow arrow signal.
		There is little lighting provided.	1. Install lighting.
	Lakeview Road	Pedestrians are unprotected by westbound left turn drivers.	1. Install a “Turning Vehicles Must Yield to Pedestrians”. 2. Install a flashing yellow arrow signal.
		The traffic signal lacks retro-reflective backplates.	1. Install retro-reflective backplates.
		There is a high frequency of angle crashes.	1. Review and update the yellow change interval and all-red clearance.
	Jeffords Street	There is a high frequency of pedestrian related crashes.	1. Relocate the bus stop to be nearer to the Clearwater Plaza intersection.
	Druid Road	There is high pedestrian volume.	1. Install “Turning Vehicles Must Yield to Pedestrians” signs at all approaches of the intersection.
		The traffic signal lacks retro-reflective backplates.	1. Install retro-reflective backplates.
		There is a high frequency of angle crashes.	1. Review the yellow change interval and all-red clearance.
	Turner Street	There is a high frequency of pedestrian related crashes.	1. Review requirement for installing a midblock crosswalk. 2. If requirement is met, install a pedestrian hybrid beacon or pedestrian actuated traffic signal.
	Court Street (at Missouri Avenue)	There is a high frequency of eastbound and westbound left turn related crashes.	1. Consider protected phase only.
		There is a high frequency of sideswipe related crashes for the northbound left turners.	1. Widen northbound left turn lane to 10 ft.
	MLK Jr. Avenue	There is a high frequency of crashes in front of the shopping plaza parking lot due to eastbound left turners.	1. Install curbing to define driveway locations. 2. Install median devices. 3. Consider right-in and right-out only at the driveway.
	Prospect Avenue	There is a high frequency of angle crashes involving southbound and westbound vehicles.	1. Consider closing access from Prospect Avenue to Court Street, installing advance warning signs, installing a signal, and/or installing yield signs.
Court Street (at Myrtle Avenue)	There is a high frequency of angle crashes involving northbound and westbound vehicles.	1. Review and update the yellow change interval and all-red clearance.	



Table 3.2 (Continued) Safety Related Spot Improvements

Segment	Alternate US 19 Location	Issue/Observation	Improvement
A	Chestnut Avenue (at Myrtle Avenue)	There is a high frequency of sideswipe crashes.	1. Install advance warning signs of lane directions and lane changes.
		There is a high frequency of angle crashes.	1. Review and update the yellow change interval and all-red clearance.
	Chestnut Avenue (at Prospect Avenue)	There is a high frequency of angle crashes involving southbound through vehicles.	1. Consider feasibility study of one-way pair with Myrtle Avenue.
	Park Street	There is a high frequency of angle crashes involving southbound and eastbound vehicles.	1. Review the sight triangles.
	Cleveland Street	The traffic signal lacks retro-reflective backplates.	1. Install retro-reflective backplates.
		Crosswalks are not in accordance with FDOT standards.	1. Upgrade crosswalk markings to special emphasis ladder-style markings.
	Drew Street	There is a high frequency of angle and left turn crashes.	1. Add left turn lanes. 2. Consider installing a roundabout. 3. Convert the driveways to right-in and right-out only driveways.
	Seminole Street	The traffic signal lacks retro-reflective backplates.	1. Install retro-reflective backplates.
		Crosswalks are not in accordance with FDOT standards.	1. Upgrade crosswalk markings to special emphasis ladder-style markings.
	Palmetto Street	The traffic signal lacks retro-reflective backplates.	1. Install retro-reflective backplates.
Crosswalks are not in accordance with FDOT standards.		1. Upgrade crosswalk markings to special emphasis ladder-style markings.	
North of Railroad Avenue	Crosswalk is not in accordance with FDOT standards.	1. Install retro-reflective backplates. 2. Upgrade crosswalk markings to special emphasis ladder-style markings.	
B	Marina Plaza	There is a high frequency of run-off-road crashes.	1. Consider installing a roundabout.
	Main Street	The traffic signal lacks retro-reflective backplates.	1. Install retro-reflective backplates.
		There are 5-section signal heads at each approach.	1. Install 4-section signal heads with flashing yellow.
		The eastbound queue backs up into the Marina Plaza intersection.	1. Review signal timing and phasing.
	Albert Street	The pedestrian and arrow signs are not up to FDOT standards.	1. Update pedestrian signs and plaques to fluorescent yellow-green.
		There is high pedestrian traffic.	1. Consider updating to rapid flash beacons (RFBs).
	Curlew Road	The pedestrian warning signs are inconsistent.	1. Update pedestrian signs and plaques to fluorescent yellow-green.
		There are 5-section signal heads at the northbound, eastbound, and westbound approaches.	1. Install 4-section signal heads with flashing yellow.
Eastbound left turns are permissive during the pedestrian phase.		1. Consider having flashing yellow or red during pedestrian phase. 2. Structural analysis may be required.	
Install 4-section signal heads with flashing yellow.		1. Review and update the yellow change interval and all-red clearance.	



Table 3.2 (Continued) Safety Related Spot Improvements

Segment	Alternate US 19 Location	Issue/Observation	Improvement
C	Curlew Road	There is no lighting on the northeast and southeast quadrants of the intersection, where the Pinellas trail runs.	1. Install lighting in the northeast and southeast quadrants of the intersection.
		The northbound queue is considerably long.	1. Conduct turning movement counts. 2. Review and update the signal timing and phasing.
	Tampa Road	There are long queues in all directions.	1. Review and update the yellow change interval and all-red clearance. 2. Review and adjust signal timing. 3. Consider installing a roundabout.
		There is a high frequency of angle and left turn crashes at the driveway south of the intersection.	1. Convert the driveway to right-in and right-out only.
	Virginia Avenue	There is a high frequency of angle and left turn crashes involving southbound and eastbound left turning vehicles.	1. Review the sight distance triangle. 2. Consider installing an Intersection Warning Sign. 3. Consider installing a roundabout.
	Florida Avenue	There is a high frequency of angle and left turn crashes.	1. Review the sight distance triangle. 2. Consider installing an Intersection Warning Sign. 3. Consider installing a roundabout.
	Delaware Avenue	There is no lighting at the midblock crosswalk.	1. Add overhead lighting.
	Alderman Road	There is a high frequency of angle and left turn crashes.	1. Review and update the yellow change interval and all-red clearance. 2. Install 4-section signal heads with flashing yellow. 3. Update left turns to protected only.
	Crystal Beach Avenue/ Crystal Drive	There is a high frequency of angle and left turn crashes involving northbound and eastbound vehicles.	1. Review the sight distance triangle. 2. Consider installing an Intersection Warning Sign. 3. Determine if signal warrants are met. 4. Consider installing a roundabout.
	Klosterman Road	There is a long southbound queue.	1. Evaluate signal timings and phasing. 2. Review and update the yellow change interval and all-red clearance.
		The crosswalk is not up to FDOT standards.	1. Upgrade crosswalk to special emphasis.
		The traffic signal lacks retro-reflective backplates.	1. Install retro-reflective backplates.
		Three of the four corners of the intersection do not have detectable warning pads for pedestrians.	1. Install detectable warning pads.
		The pedestrian push buttons are worn out and the signal heads are not up to FDOT standards.	1. Refurbish the pedestrian pushbuttons. 2. Upgrade to pedestrian signal indications with countdown displays.
Bicyclists are riding on the sidewalk and in the dirt, off of the roadway.		1. Install bicycle lanes.	
There is a gap in the sidewalk south of the intersection, on the west side of the roadway.		1. Install sidewalk.	



3.3 Traffic Analysis Improvements

A DTTM evaluated existing and future traffic volumes anticipated for the Alternate US 19 corridor. Based on the deficiencies of the design year (2040) no-build analyses, improvements were proposed at several intersections along Alternate US 19 from Belleair Road to the Pinellas/Pasco County line. Operational and/or geometric improvements were proposed at ten intersections which are not anticipated to meet the standard LOS D in the design year (2040) no-build analysis. Improvements include adjusting signal timing, adding left and right turn lanes, and/or implementing of traffic signals at existing stop controlled intersections. Recommendations for additional capacity along the Alternate US 19 mainline were minimized in the interest of maintaining a pedestrian and bicycle safe environment. The recommended improvements for each intersection are summarized in **Table 3.3**.

3.4 Public Involvement

A *Public Involvement Plan* (PIP) was created and approved on May 4, 2017 for the Alternate US 19 Corridor Study project. The PIP outlines community outreach efforts and the approach used throughout this project to involve the general public, public officials, the media, and government agencies in the project process. Property owner and public/agency officials mailing lists were developed for the purpose of sending out newsletters and public meeting invitations. The PIP is compliant with the PD&E Manual, Public Involvement Handbook, Section 339.155, Florida Statutes, Executive Orders 11990 and 11988, Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of National Environmental Policy Act (NEPA).

Collaboration between the project team and key stakeholders included establishing a PAG comprised of agency staff from the jurisdictions with an interest in the corridor. The study engaged this group to seek input into the planning process and to promote a heightened awareness of the issues and challenges of the corridor. The PAG was also instrumental in facilitating and encouraging outreach to residents and users of the corridor and surrounding neighborhoods. There were a total of five PAG meetings held throughout the course of the Corridor Study.

At the onset of the Corridor Study, a project website was created for the project (<http://www.fdotd7studies.com/altus19studies/>) and updated frequently. The project website includes a home page, information explaining the Corridor Study process, a project overview, the project location, the project schedule, study team contact information, information regarding public involvement activities, copies of project newsletters and other project materials, and several options to submitting comments.

Additional online engagement was accomplished via an online user preferences survey that was active from June through August 2017, to collect public input on the existing conditions along the Alternate US 19 corridor. Nearly 300 responses were gathered from this survey to supplement the input gathered during the in-person workshops. A copy of the survey and input received is included in **Appendix A**. Throughout the study, public input was also received through the use of an online commenting tool. This online public involvement platform allowed the project team to collect geo-referenced public comments on vehicular, transit, bicycle, pedestrian, and other issues along the corridor and was accessed at <http://wikimapping.com/wikimap/Alt-19-Corridor.html>. Approximately 148 distinct comments were collected through this online platform.



Table 3.3 Traffic Related Intersection Improvements

Segment	Alternate US 19 Intersection	Improvement
A	Belleair Road	<ol style="list-style-type: none"> 1. Add a second westbound left turn lane 2. Protect the westbound left turn movements 3. Modify signal cycle length and splits for enhanced operation
	Court Street (at Missouri Avenue)	<ol style="list-style-type: none"> 1. Add a second westbound left turn lane 2. Add a second northbound left turn lane 3. Protect all of the left turn movements 4. Modify signal cycle length and splits for enhanced operation
	MLK Jr. Avenue	<ol style="list-style-type: none"> 1. Add an exclusive northbound right turn lane 2. Modify signal cycle length and splits for enhanced operation
B	Marina Plaza	<ol style="list-style-type: none"> 1. Adjust orientation of intersection such that the westbound approach becomes a southbound approach 2. Signalize and cluster with Main Street Intersection 3. Provide two southbound through lanes to allow for appropriate queuing 4. Include downstream southbound merge from two lanes to one
	Main Street	<ol style="list-style-type: none"> 1. Develop a shared southbound through/left storage lane along the southbound approach 2. Cluster with Marina Plaza signal 3. Modify signal cycle length and splits for enhanced operation
	Skinner Boulevard	<ol style="list-style-type: none"> 1. Add a second southbound left turn lane 2. Protect the southbound left turn movement 3. Modify signal cycle length and splits for enhanced operation
	Curlew Road	<ol style="list-style-type: none"> 1. Modify southbound exclusive right turn movement to become a shared through/right turn movement 2. Add additional northbound through lane 3. Include downstream southbound and northbound merges two lanes to one 4. Add an additional westbound left turn lane and adjust the movement to fully protected 5. Overlap eastbound right with northbound left movement 6. Overlap northbound right with westbound left movement 7. Prohibit all 'Right Turn on Red' movements
C	Tampa Road	<ol style="list-style-type: none"> 1. Modify northbound exclusive right turn movement to become a shared through/right turn movement 2. Modify southbound approach to accommodate two left turn lanes, one through lane, and one shared through/right turn lane 3. Include downstream southbound and northbound merges from two lanes to one 4. Adjust the southbound left movement to fully protected 5. Modify signal cycle length and splits for enhanced operation
	Klosterman Road	<ol style="list-style-type: none"> 1. Add an additional southbound left turn movement and adjust the movement to fully protected 2. Overlap westbound right with southbound left movement 3. Overlap northbound right with westbound left movement 4. Prohibit all 'Right Turn on Red' movements Improve the signal timing operation 5. Modify signal cycle length and splits for enhanced operation
D	Meres Boulevard	<ol style="list-style-type: none"> 1. Add an exclusive eastbound and northbound right turn lane

Project Visioning Charrettes were held in early June 2017 which allowed the study team to gather additional input from the various stakeholders. The project team compiled the findings from the visioning charrettes and sought input from the public to refine the vision for the corridor at the Project Visioning Workshop which was held in December 2017. At the Visioning Workshop, the study team shared the guiding principles for the study and presented an overview of FDOT's Context Classification System and how it will be used to evaluate potential improvements for Alternate US 19. Attendees were asked to rank the guiding principles and share their vision for how the right-of-way along Alternate



US 19 could be used, through an interactive street design activity. Over 100 members of the public attended.

Comments from the project website, emails, surveys, the Visioning Charrettes, and the PAG meetings were reviewed and condensed. There are several themes amongst the comments that pertained to the entire corridor. The corridor wide comments can be summarized as follows:

1. Move as much bicycle traffic from Alternate US 19 to the Pinellas Trail as possible.
2. Improve and/or add pedestrian and bicycle crossings and facilities along the corridor.
3. Add bus-pullouts along the corridor.
4. Add capacity for additional vehicles and remove the no passing zones.
5. Replace the span wires with mast arms.
6. Slow traffic in residential areas.
7. Coordinate traffic signals.
8. Install roundabouts.
9. Improve existing flooding issues in several areas of the corridor.
10. Add street lighting in several areas along the corridor.
11. Correct sight distance concerns.
12. Reroute Alternate US 19 to other parallel facilities.

In addition, there were also several comments related to the various segments and jurisdictions throughout the corridor that have been summarized in **Table 3.4**.

Table 3.4 Segmented Public Comments

Segment	Alternate US 19 Segment	Comment
A	Belleair Road to Court Street	<ol style="list-style-type: none"> 1. The lane widths are too narrow. 2. Improve street lighting. 3. Add bus pullouts at the transit stops. 4. The traffic signals are not coordinated.
	Court Street and Chestnut Avenue	<ol style="list-style-type: none"> 1. The eastbound and westbound movements should be coordinated. 2. Add dedicated turn lanes.
	South Myrtle Avenue	<ol style="list-style-type: none"> 1. Add dedicated northbound and southbound left turn lanes.
	Palmetto Street to Sunset Point Road	<ol style="list-style-type: none"> 1. Need consistent Americans with Disabilities Act (ADA) compliant sidewalks. 2. Landscaping interferes with sight distance.
B	Sunset Point Road to Marina Plaza	<ol style="list-style-type: none"> 1. This segment is congested with traffic. 2. There are not enough crosswalks. 3. Preserve the scenic view of the corridor. 4. Slow or reroute traffic elsewhere.
	President Street to Scotland Street	<ol style="list-style-type: none"> 1. Traffic blocks the side streets. 2. Add "Do Not Block Intersection" signs.
	Monroe Street to Jackson Street	<ol style="list-style-type: none"> 1. There is a need for golf cart crossings.
	City of Dunedin	<ol style="list-style-type: none"> 1. Preserve the heritage and character of the corridor. 2. Add additional and safer crosswalks and parking.
C	Ketch Circle to Wai Lani Road	<ol style="list-style-type: none"> 1. There are flooding issues during rainstorms.
	City of Palm Harbor	<ol style="list-style-type: none"> 1. Improve connectivity and bicycle/pedestrian facilities. 2. Automobiles have too much priority.
D	City of Tarpon Springs	<ol style="list-style-type: none"> 1. Improve the landscaping. 2. Reduce congestion.



A Corridor Alternatives Public Workshop was held in September 2018. At this workshop, the study team presented a summary of the study findings and requested input from attendees on the proposed short- and long-term improvements developed for the Corridor that are summarized in this document. Approximately 110 members of the public attend this workshop.

3.5 PSTA Transit Needs

PSTA was an active stakeholder during the Corridor Study process. Based on coordination with agency staff, PSTA's primary needs/concerns as the proposed improvements move forward towards implementation include:

Bus Bays

PSTA seeks to coordinate with FDOT as projects move into design to collaborate on potential locations for bus bays. Ideally, these locations will correspond with existing route time points such that the bus bays could also potentially be used as layover areas.

Mid-Block Crossings

PSTA seeks to coordinate with FDOT as projects move into design so that as they continue to expand their bus stop consolidation program, bus stops locations can be identified that will match up well with proposed mid-block crossings.

Access, Comfort, and Convenience for Transit Users

Future design projects along the corridor should take into account space needs in order to accommodate amenities such as trash receptacles, passenger information totems at transit stops, etc., and to ensure ADA compliance at all bus stops.

Safety

Future design projects along the corridor should also specifically consider safety needs as they relate to transit stops including visibility of the stop, lighting, the potential interactions of passengers with traffic flow, and how to accommodate pedestrian crossings.

Business Access and Transit Lanes

No Business Access and Transit (BAT) lanes are currently proposed within the Corridor Study project limits; however, the agency would like for BAT lanes to remain a potential option for longer-term improvements that may revisit capacity needs along the corridor.

3.6 Summary of Corridor Improvement Alternatives

Several alternative options were developed with various combinations of spot and segment improvements along Alternate US 19 from Belleair Road to the Pinellas/Pasco County line. Improvements were developed with the intent of addressing existing safety issues and concerns, expected future traffic operations, and/or public comments. The following sections summarize improvement options by segment and location for the study corridor. Multiple options may be proposed at a given location due to various needs at that location. Conceptual Design Plans for Alternate US 19 from Belleair Road to the Pinellas/Pasco County line can be found in **Appendix B**.



3.6.1 Clearwater (Segment A)

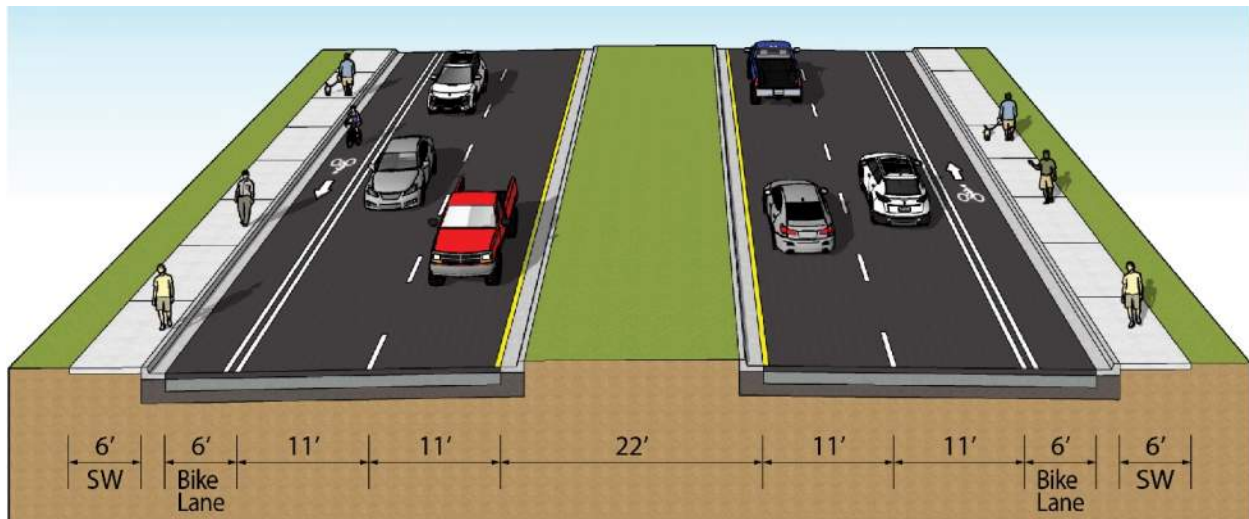
Due to the need for a more pedestrian and bicycle friendly corridor, lane repurposing has been proposed for multiple segments of Alternate US 19 within the Clearwater area (Segment A).

3.6.1.1 Segment Improvements

Belleair Road to Court Street

Lane repurposing has been proposed for Alternate US 19 from Belleair Road to Court Street along Missouri Avenue to provide a safer, multimodal, and more scenic corridor. The proposed improvement reduces the existing six-lane divided typical section to a four-lane divided typical section with increased lane widths, an increased median width, and 6-foot buffered bicycle lanes in each direction of the corridor. **Figure 3.2** shows the proposed typical section for Alternate US 19 from Belleair Road to Court Street along Missouri Avenue.

Figure 3.2 Proposed Typical Section from Belleair Road to Court Street



Court Street from Missouri Avenue to MLK Jr. Avenue

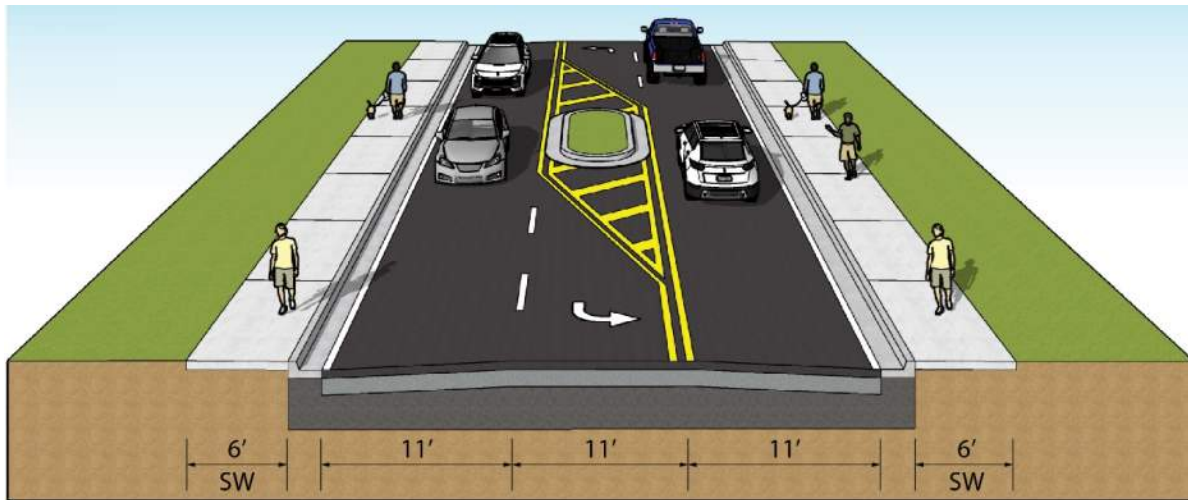
Due to safety concerns with left turning vehicles, it is proposed to convert the existing TWLT lane to a raised median with left turn bays along Court Street from Missouri Avenue to MLK Jr. Avenue.

Chestnut Street to Pierce Street

Lane repurposing has been proposed for Alternate US 19 from Chestnut Street to Pierce Street along Myrtle Avenue to provide a safer, multimodal, and more scenic corridor. The proposed improvement reduces the existing four-lane undivided typical section to a two-lane divided typical section with left turn bays in each direction of the corridor. **Figure 3.3** shows the proposed typical section for Alternate US 19 from Chestnut Street to Pierce Street along Myrtle Avenue.



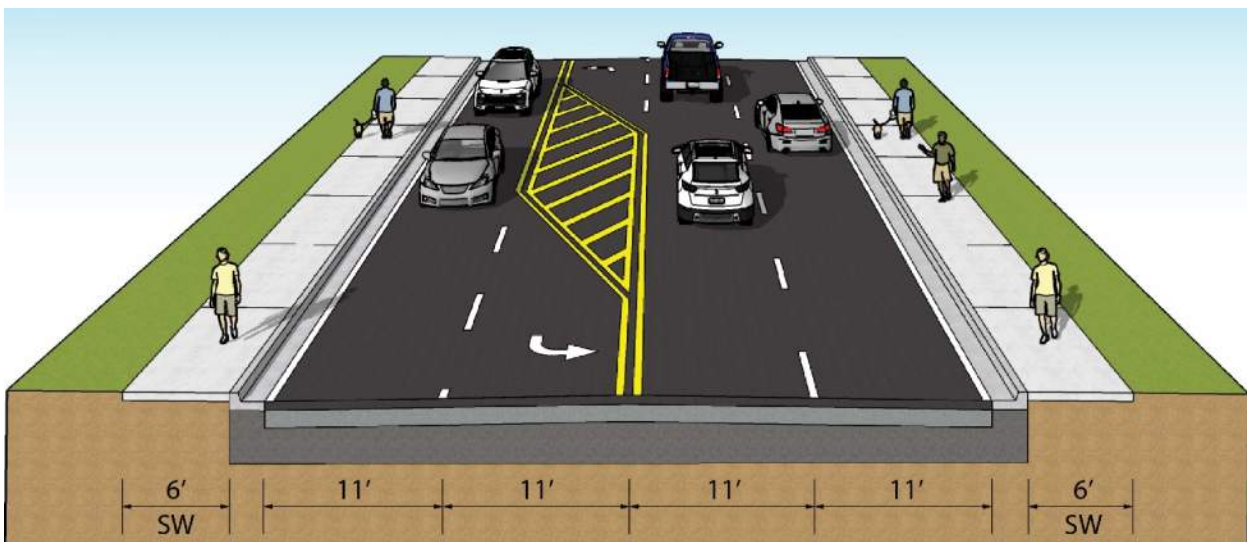
Figure 3.3 Proposed Typical Section from Chestnut Street to Pierce Street



Pierce Street to Drew Street

Lane repurposing has been proposed for Alternate US 19 from Pierce Street to Drew Street along Myrtle Avenue to provide a safer, multimodal, and more scenic corridor. The proposed improvement reduces the existing four-lane undivided typical section to a three-lane divided typical section with two lanes in the northbound direction, one lane in the southbound direction, a striped median, and left turn bays in each direction of the corridor. **Figure 3.4** shows the proposed typical section for Alternate US 19 from Pierce Street to Drew Street along Myrtle Avenue.

Figure 3.4 Proposed Typical Section from Pierce Street to Drew Street



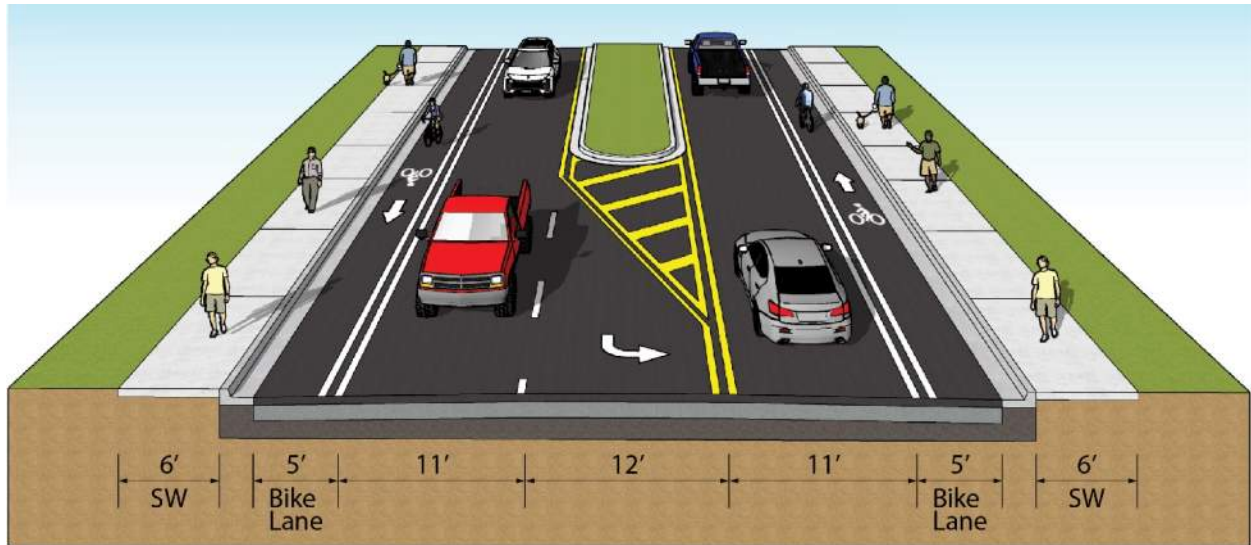
Drew Street to Marshall Street

Lane repurposing has been proposed for Alternate US 19 from Drew Street to Marshall Street along Myrtle Avenue to provide a safer, multimodal, and more scenic corridor. The proposed improvement reduces the existing four-lane undivided typical section to a two-lane divided typical section with a raised median, left turn bays, and 5-foot buffered bicycle lanes in each direction of the corridor. **Figure**



3.5 shows the proposed typical section for Alternate US 19 from Drew Street to Marshall Street along Myrtle Avenue.

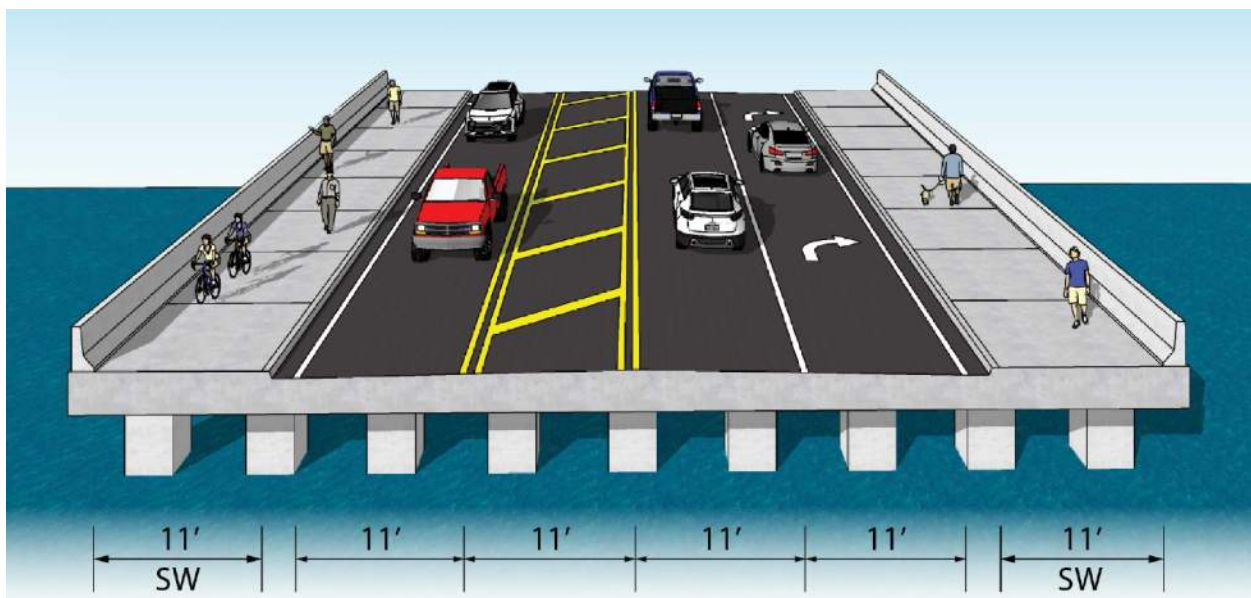
Figure 3.5 Proposed Typical Section from Drew Street to Marshall Street



Stevenson Creek Bridge

South of Sunset Point Road, a sidewalk on the east side of Alternate US 19, across the Stevenson Creek Bridge (Bridge No. 150173), has been proposed in order to provide continued pedestrian accommodations along both sides of the corridor. The proposed improvement would reduce the sidewalk on the west side of the bridge to 11-feet and shift the travel lanes westward in order to accommodate an 11-foot sidewalk on the east side of the bridge. Also, the lane widths and striped median width would be reduced. **Figure 3.6** shows the proposed typical section for Alternate US 19 along the Stevenson Creek Bridge.

Figure 3.6 Proposed Typical Section along the Stevenson Creek Bridge





Sunset Point Road to Union Street

Repurposing of the roadway has been proposed for Alternate US 19 from Sunset Point Road to Union Street. The existing two-lane undivided typical section would change from an 11-foot southbound lane and 15-foot northbound lane to 11-foot lanes in each direction. The sidewalk on the west side of the corridor would be widened to allow for increased bicycle and pedestrian usage along the waterfront, and the sidewalk on the east side of the corridor would be widened to 6-feet. **Figure 3.7** shows the proposed typical section for Alternate US 19 from Sunset Point Road to Union Street.

Figure 3.7 Proposed Typical Section from Sunset Point Road to Union Street



3.6.1.2 Spot Improvements

Belleair Road Intersection

At Belleair Road, an additional westbound left turn lane has been proposed in order to better service the demand of the movement. Due to the proposed lane repurposing along Missouri Avenue from Belleair Road to Court Street, the northbound and southbound approaches of the intersection concepts are reduced from three through lanes to two through lanes at Belleair Road. **Figure 3.8** shows the proposed improvements at the Belleair Road intersection.



Figure 3.8 Proposed Improvements at Belleair Road



Between Woodlawn Street and Bellevue Boulevard

A new pedestrian midblock crosswalk with truncated domes has been proposed between Woodlawn Street and Bellevue Boulevard to allow pedestrians an opportunity to safely cross the roadway between the 0.75 mile stretch between Belleair Road and Lakeview Road. This is in keeping with the overall vision of a bicycle and pedestrian friendly corridor. **Figure 3.9** shows the proposed crosswalk between Woodlawn Street and Bellevue Boulevard.

Figure 3.9 Proposed Crosswalk between Woodlawn Street and Bellevue Boulevard

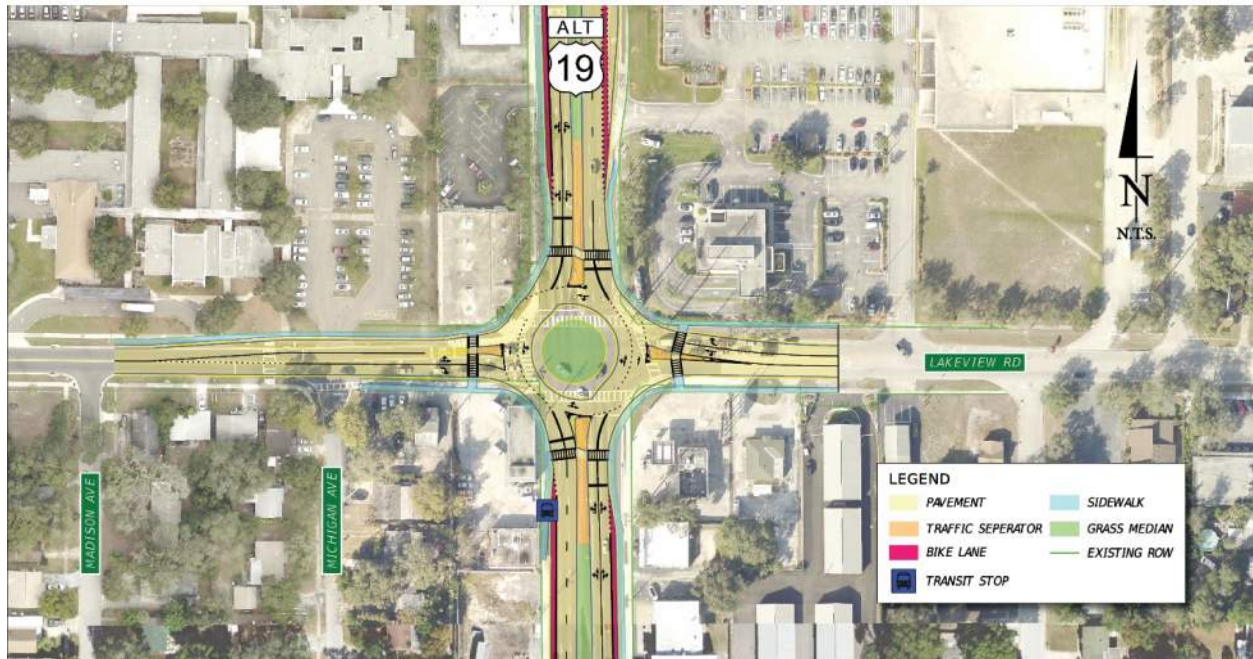




Lakeview Road Intersection

A two-lane roundabout has been proposed at Lakeview Road. The roundabout provides two entrance lanes at every approach, but only one exit lane in the eastbound and westbound directions, resulting in one circulating lane for the entirety of the roundabout. This requires users to determine their lane choice before entering the roundabout. A roundabout will help to reduce speeds through and leading up to the intersection, therefore allowing for safer bicycle and pedestrian accommodations through the area. **Figure 3.10** shows the proposed improvements at the Lakeview Road intersection.

Figure 3.10 Proposed Improvements at Lakeview Road



Clearwater Plaza Intersection

Due to the proposed lane repurposing along Missouri Avenue from Belleair Road to Court Street, the northbound and southbound approaches of the intersection concepts are reduced from three through lanes to two through lanes at Clearwater Plaza. **Figure 3.11** shows the proposed improvements at the Clearwater Plaza intersection.



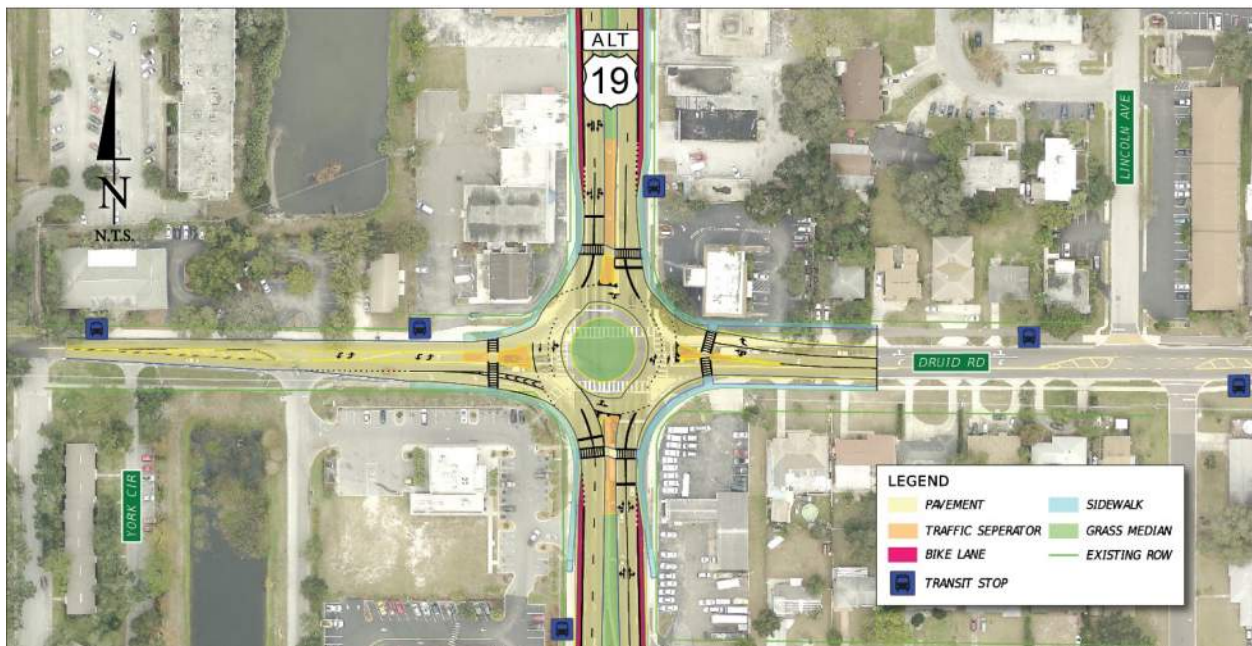
Figure 3.11 Proposed Improvements at Clearwater Plaza



Druid Road Intersection

A two-lane roundabout has been proposed at Druid Road. The roundabout provides two entrance lanes at every approach, but only one exit lane in the eastbound and westbound directions, resulting in one circulating lane for the entirety of the roundabout. This requires users to determine their lane choice before entering the roundabout. A roundabout will help to reduce speeds through and leading up to the intersection, therefore allowing for safer bicycle and pedestrian accommodations through the area. **Figure 3.12** shows the proposed improvements at the Druid Road intersection.

Figure 3.12 Proposed Improvements at Druid Road





Court Street at Missouri Avenue Intersection

At Court Street and Missouri Avenue, additional northbound and westbound left turn lanes have been proposed in order to better service the demand of those movements. **Figure 3.13** shows the proposed improvements at the Court Street and Missouri Avenue intersection.

Figure 3.13 Proposed Improvements at Court Street and Missouri Avenue



Chestnut Street Intersection

Due to the proposed lane repurposing for Alternate US 19 from Chestnut Street to Pierce Street, it is proposed to convert the outer northbound lane to a right turn only lane and to repurpose the southbound approach to one left turn lane and one through lane at Chestnut Street. **Figure 3.14** shows the proposed improvements at the Chestnut Street intersection.



Figure 3.14 Proposed Improvements at Chestnut Street



Court Street at Myrtle Avenue Intersection

Due to the proposed lane repurposing for Alternate US 19 from Chestnut Street to Pierce Street, it is proposed to repurpose the northbound approach to one left turn lane and one through lane and the southbound approach to one through lane and one right turn lane at Court Street. **Figure 3.15** shows the proposed improvements at the Court Street and Myrtle Avenue intersection.

Figure 3.15 Proposed Improvements at Court Street and Myrtle Avenue





Between Franklin Street and Pierce Street

A new pedestrian midblock crosswalk with truncated domes has been proposed between Franklin Street and Pierce Street to allow pedestrians access to the new PSTA Clearwater Intermodal Center. This is in keeping with the overall vision of a bicycle and pedestrian friendly corridor. **Figure 3.16** shows the proposed crosswalk between Franklin Street and Pierce Street.

Figure 3.16 Proposed Crosswalk between Franklin Street and Pierce Street



Between Pierce Street and Park Street

A new pedestrian midblock crosswalk with truncated domes has been proposed between Pierce Street and Park Street to allow pedestrians more access to local business within Downtown Clearwater. This is in keeping with the overall vision of a bicycle and pedestrian friendly corridor. **Figure 3.17** shows the proposed crosswalk between Pierce Street and Park Street.

Figure 3.17 Proposed Crosswalk between Pierce Street and Park Street





Cleveland Street Intersection

Due to the proposed lane repurposing for Alternate US 19 from Pierce Street to Drew Street, it is proposed to add a northbound left turn lane and repurpose the southbound approach to one left turn lane and one through lane at Cleveland Street. **Figure 3.18** shows the proposed improvements at the Cleveland Street intersection.

Figure 3.18 Proposed Improvements at Cleveland Street



Drew Street Intersection

Due to the proposed lane repurposing for Alternate US 19 north and south of Drew Street, it is proposed to add a northbound left turn lane, convert the outside northbound lane to a right turn only lane, and repurpose the southbound approach to one left turn lane and one through lane at Drew Street. **Figure 3.19** shows the proposed improvements at the Drew Street intersection.



Figure 3.19 Proposed Improvements at Drew Street



Seminole Street Intersection

Due to the proposed lane repurposing for Alternate US 19 from Drew Street to Marshall Street, it is proposed to repurpose the northbound and southbound approaches to one left turn lane and one through lane at Seminole Street. **Figure 3.20** shows the proposed improvements at the Seminole Street intersection.

Figure 3.20 Proposed Improvements at Seminole Street

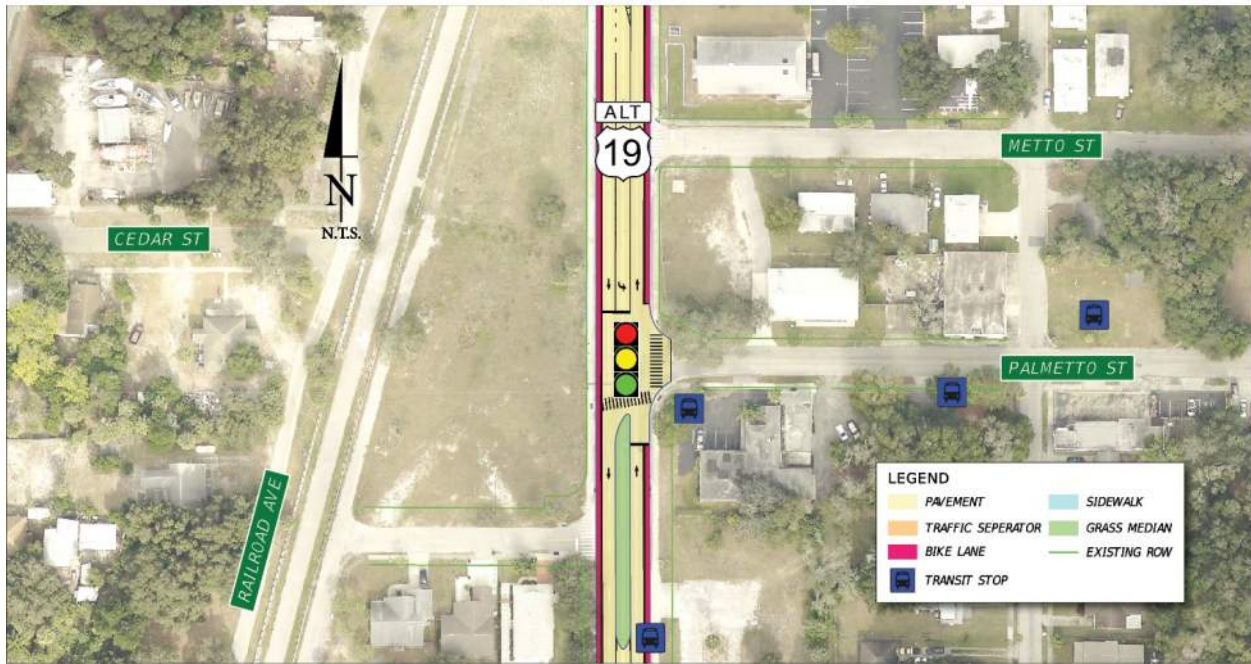




Palmetto Street Intersection

Due to the proposed lane repurposing for Alternate US 19 from Drew Street to Marshall Street, it is proposed to reduce the northbound approach to one through lane and repurpose the southbound approach to one left turn lane and one through lane at Palmetto Street. **Figure 3.21** shows the proposed improvements at the Palmetto Street intersection.

Figure 3.21 Proposed Improvements at Palmetto Street



Pinellas Trail Crossing

The existing pedestrian midblock crosswalk at the Pinellas Trail crossing, north of Palm Bluff Street, will be updated due to the lane repurposing proposed along Alternate US 19 from Drew Street to Marshall Street. The crosswalk will be updated with truncated domes at each approach of the crosswalk and with a raised median on either side of the crosswalk. This will encourage greater compliance of the perpendicular crosswalk by pedestrians and bicyclists, as opposed to riding diagonally across Alternate US 19 without stopping. The proposed crosswalk at the Pinellas Trail Crossing would be the same as previously shown on **Figure 3.16**.

Marshall Street Intersection

Due to the proposed lane repurposing for Alternate US 19 from Drew Street to Marshall Street, it is proposed to repurpose the northbound and southbound approaches to one left turn lane and one through lane at Marshall Street. **Figure 3.22** shows the proposed improvements at the Marshall Street intersection.



Figure 3.22 Proposed Improvements at Marshall Street



Fairmont Street Intersection

A one-lane roundabout has been proposed at Fairmont Street. A roundabout will help to reduce speeds through and leading up to the intersection, therefore allowing for safer bicycle and pedestrian accommodations through the area. **Figure 3.23** shows the proposed improvements at the Fairmont Street intersection.

Figure 3.23 Proposed Improvements at Fairmont Street

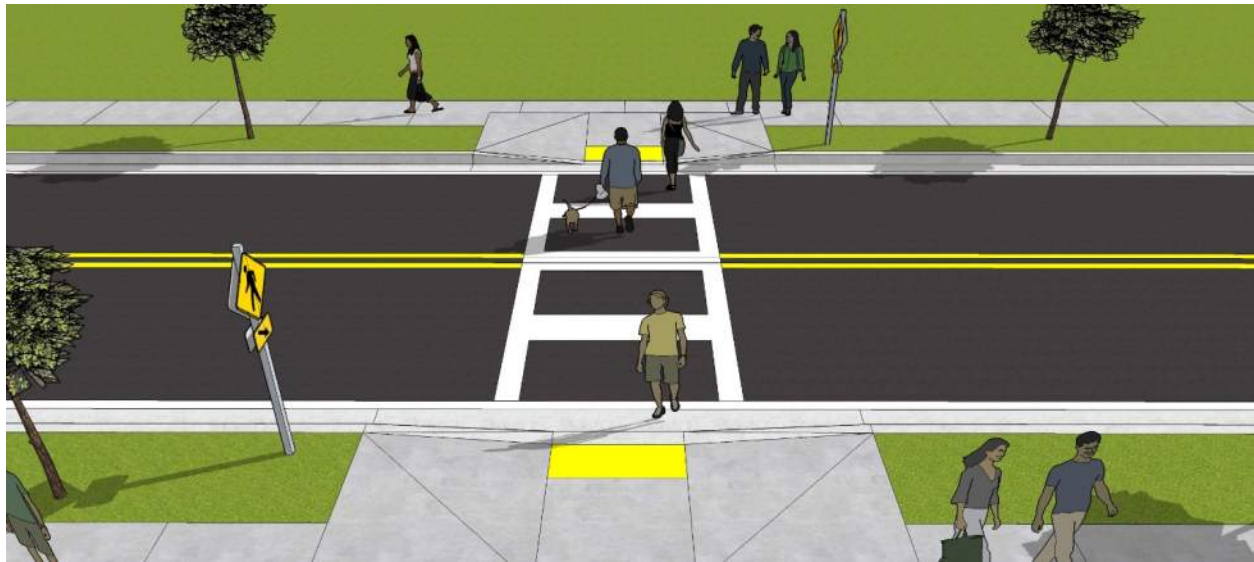




Between Sedeeva Street and Charles Street and between Marine Street and Union Street

New pedestrian midblock crosswalks with truncated domes have been proposed between Sedeeva Street and Charles Street and between Marine Street and Union Street to allow pedestrians more access points to and from the waterfront, on the west side of the roadway. This is in keeping with the overall vision of a bicycle and pedestrian friendly corridor. **Figure 3.24** shows the proposed crosswalks along the Alternate US 19 waterfront area.

Figure 3.24 Proposed Crosswalks along Alternate US 19 Waterfront



3.6.2 Dunedin (Segment B)

Through the various workshops, meetings, and presentations that have taken place throughout the course of the Alternate US 19 Corridor Study, there have been several comments and concerns regarding the designation of Alternate US 19 through the City of Dunedin. Coordination between the FDOT, Pinellas County, and Forward Pinellas will be required to discuss the possibility of redesignating Alternate US 19 onto another parallel facility (such as Douglas Avenue or CR 1), rerouting truck traffic onto another parallel facility, and/or classifying Alternate US 19 as a scenic route through the City of Dunedin. However, regardless of any redesignation along the Alternate US 19 corridor, the following improvements have been proposed within Dunedin.



3.6.2.1 Segment Improvements

Union Street to Marina Plaza

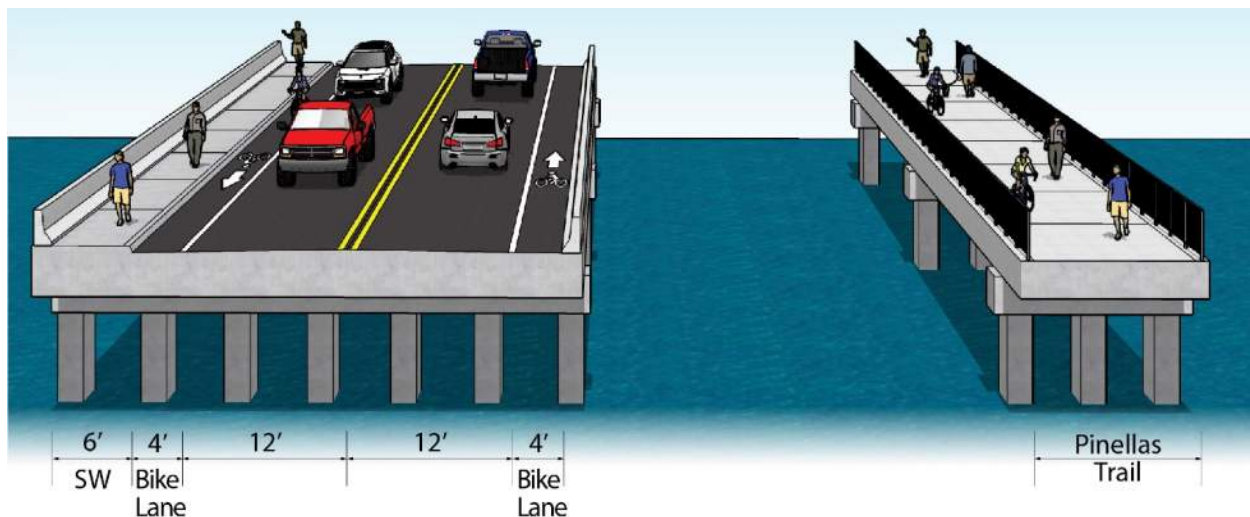
Repurposing of the roadway has been proposed for Alternate US 19 from Union Street to Marina Plaza. The existing two-lane undivided typical section would change from an 11-foot southbound lane and 15-foot northbound lane to 11-foot lanes in each direction. The reduced lane widths will promote lower speeds. The FDOT will conduct a spot speed study following this typical section change to evaluate the feasibility of lowering speeds along Edgewater Drive. The sidewalk on the west side of the corridor would be widened to allow for increased bicycle and pedestrian usage along the waterfront, and the sidewalk on the east side of the corridor would be widened to 6-feet. The proposed typical section for Alternate US 19 from Union Street to Marina Plaza would be the same as previously shown in **Figure 3.7**.



Curlew Creek Bridge

South of Causeway Boulevard/Curlew Road, a sidewalk on the west side of Alternate US 19 and 4-foot bicycle lanes on each side of the corridor, across the Curlew Creek Bridge (Bridge No. 150046), have been proposed in order to provide continued bicycle and pedestrian accommodations throughout the corridor. The existing Pinellas Trail bridge, east of the Alternate US 19 corridor, would remain unchanged and provide pedestrian accommodations for those traveling along the east side of the roadway. The proposed improvements would require widening of the bridge. **Figure 3.25** shows the proposed typical section for Alternate US 19 along the Curlew Creek Bridge.

Figure 3.25 Proposed Typical Section along the Curlew Creek Bridge



3.6.2.2 Spot Improvements

South of Orangewood Drive, South of Florida Avenue, and at the Fenway Hotel

New pedestrian midblock crosswalks with truncated domes have been proposed south of Orangewood Drive, south of Florida Avenue, and at the Fenway Hotel to allow pedestrians more access points to and from the waterfront, on the west side of the roadway. The FDOT will further evaluate the need for RFBs at these locations. The City of Dunedin has also requested the implementation of in pavement lighting, which will be also be evaluated by the FDOT. This is in keeping with the overall vision of a bicycle and pedestrian friendly corridor. The proposed crosswalks along the Alternate US 19 waterfront area would be the same as previously shown on **Figure 3.24**.

Marina Plaza and Main Street Intersections

Two concepts have been proposed for the Marina Plaza and Main Street intersections, within downtown Dunedin, and are described as follows:

Option 1 (Figure 3.26): Install two back-to-back roundabouts, also known as a ‘dog bone’ roundabout. The roundabouts would be connected to make one large, continuous roundabout between the two intersections.

Option 2 (Figure 3.27): Reorient the Marina Plaza intersection and add a traffic signal. The new traffic signal at Marina Plaza would be coordinated with the Main Street intersection so that they would act as one intersection, therefore reduced vehicle queue spillback between the two intersections.



Figure 3.26 Proposed Improvements at Marina Plaza and Main Street (Option 1)



Figure 3.27 Proposed Improvements at Marina Plaza and Main Street (Option 2)





Table 3.5 summarizes the pros and cons for each alternative at the Marina Plaza and Main Street intersections.

Table 3.5 Pros and Cons of the Downtown Dunedin Alternatives

Marina Plaza/Main Street Alternatives	Pros	Cons
Option 1 – Dual Roundabouts acting as One: “Dog Bone” Roundabout	<ul style="list-style-type: none"> • Promotes continuous flow of traffic movements • Provides a gateway feature and a sense of place • Significant reduction in vehicle delay as compared to the no build alternative 	<ul style="list-style-type: none"> • Effectiveness of continual traffic flow may be hampered by pedestrian crossing movements • Increased amount of circuitous travel • Greater right of way impacts and cost to construct
Option 2 – Marina Plaza Intersection Realignment and Dual Traffic Signals	<ul style="list-style-type: none"> • Ability to control amount of vehicle queuing between intersections and pedestrian crossing movements • Better level of operation than the roundabout alternative 	<ul style="list-style-type: none"> • Increased number of vehicle stops may increase the propensity for rear end crashes • Three times the number of conflict points than the roundabout alternative

South of Pershing Street to North of Josiah Cephus Weaver Park

Currently, there is a pedestrian midblock crosswalk at the Josiah Cephus Weaver Park on Alternate US 19. No improvements have been proposed to the crosswalk directly, but it is proposed to extend the raised median southward to Jackson Street, and northward to Cedar Street.

Causeway Boulevard/Curlew Road Intersection

Four concepts have been proposed for the Causeway Boulevard/Curlew Road intersection and are described as follows:

Option 1 (Figure 3.28): Add a northbound through lane, convert the southbound right turn lane to a shared through and right turn lane, add a westbound left turn lane, and merge the northbound and southbound through movements from two lanes to one lane downstream of the intersection.

Option 2 (Figure 3.29): Add displaced left turn (DLT) lanes in the eastbound and westbound directions. By displacing the left turn movement in the eastbound and westbound directions, the left turn and through movements can occur at the same time, thereby reducing green time needed to service traffic in the eastbound and westbound directions. With a reallocation of the green time from the traffic in eastbound and westbound approaches, additional green time is allocated to the heavier volume, northbound and southbound through movements, on Alternate US 19.

Option 3 (Figure 3.30): Add DLTs on all approaches to the intersection, which is also known as a continuous flow intersection (CFI). Similar to option 2, this allows for better utilization of the green time by allowing left turn and through movements to occur at the same time within the main intersection.

Option 4 (Figure 3.31): Convert the intersection into a northbound and southbound median U-turn (MUT) intersection. A MUT intersection prohibits left turns to occur from any approach. The eastbound and westbound left turn movements would be required to make a right turn at the intersection and proceed to make a U-turn further downstream. The northbound and southbound left turn movements would be required to pass through the intersection to make a U-turn and then a right turn back at the main intersection. A MUT intersection allows for a two phase signal to be implemented, which in turn allows for greater green times for the heavier northbound and southbound through movements.



Figure 3.28 Proposed Improvements at Causeway Boulevard/Curlew Road (Option 1)





Figure 3.29 Proposed Improvements at Causeway Boulevard/Curlew Road (Option 2)





Figure 3.30 Proposed Improvements at Causeway Boulevard/Curlew Road (Option 3)





Figure 3.31 Proposed Improvements at Causeway Boulevard/Curlew Road (Option 4)





Table 3.6 summarizes the pros and cons for each alternative at the Causeway Boulevard/Curlew Road intersection.

Table 3.6 Pros and Cons of the Curlew Road Alternatives

Causeway Boulevard/Curlew Road Alternatives	Pros	Cons
Option 1 – Add Lanes to Existing Intersection	<ul style="list-style-type: none"> Least amount of right of way needed to construct Lowest cost to construct among alternatives considered 	<ul style="list-style-type: none"> Additional lanes increase crossing distances for pedestrians and bicyclists A lane addition followed by a lane drop may cause motorists to underutilize the add lanes, thereby reducing its effectiveness
Option 2 – East/West Displaced Left Turn (DLT) Lanes Intersection	<ul style="list-style-type: none"> Provides the greatest safety and operational benefit to cost No changes made to north and south legs of intersection 	<ul style="list-style-type: none"> Impacts access on east and west legs of intersection Contrary to driver expectancy
Option 3 – Continuous Flow Intersection (CFI)	<ul style="list-style-type: none"> Provides the greatest level of operation 	<ul style="list-style-type: none"> Highest cost to construct Impacts access on all intersection legs Contrary to driver expectancy
Option 4 – Median U-Turn (MUT) Intersection	<ul style="list-style-type: none"> Safest intersection configuration Excellent pedestrian and bicycle accommodations 	<ul style="list-style-type: none"> Greatest right of way impacts Increased levels of circuitous travel

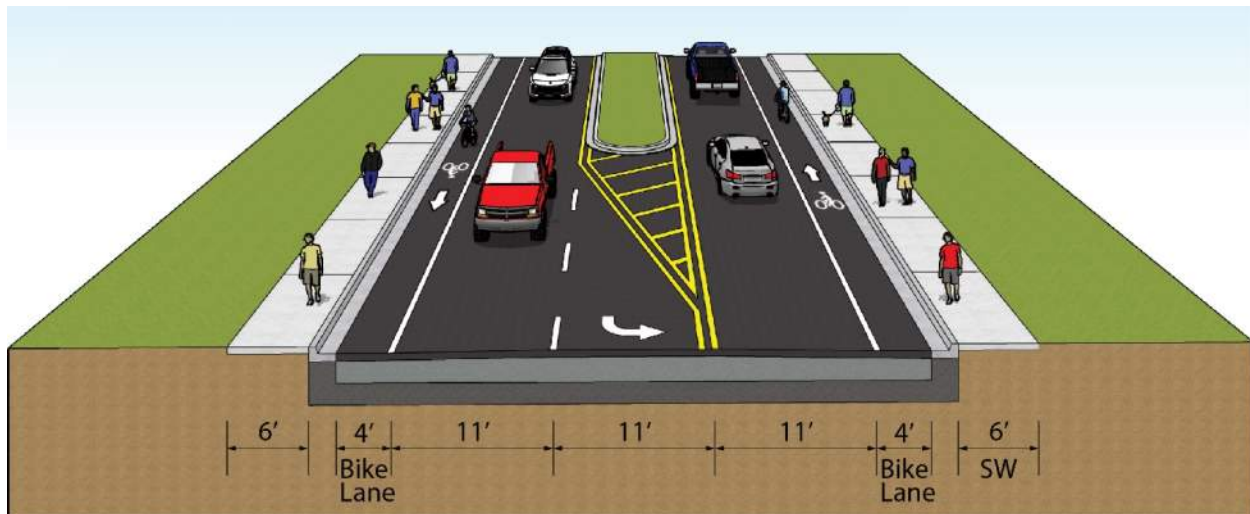
3.6.3 Palm Harbor (Segment C)

3.6.3.1 Segment Improvements

Virginia Avenue to Michigan Avenue

From Virginia Avenue to Michigan Avenue, minor improvements have been proposed to the typical section along Alternate US 19. The existing open drainage system would be converted to a closed drainage system with curb and gutter. Portions of the existing TWLT lane would be converted to an 11-foot raised median with left turn bays. The sidewalk on the west side of the street would be made adjacent to the roadway and a new sidewalk on the east side of the roadway would be provided. **Figure 3.32** shows the proposed typical section for Alternate US 19 from Virginia Avenue to Michigan Avenue.

Figure 3.32 Proposed Typical Section from Virginia Avenue to Michigan Avenue

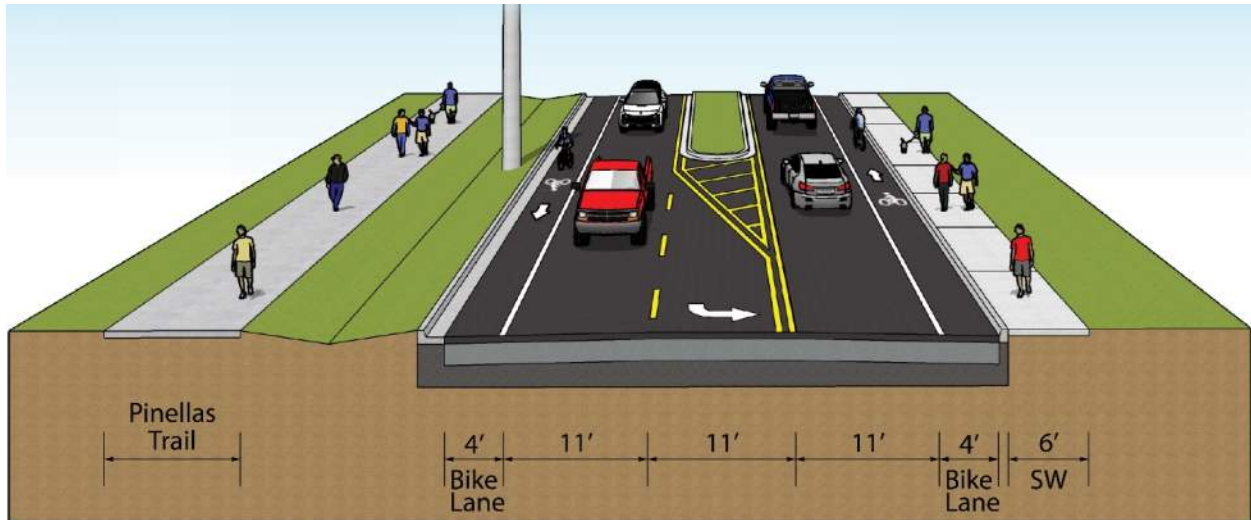




Michigan Avenue to Ketch Circle

From Michigan Avenue to Ketch Circle, minor improvements have been proposed to the typical section along Alternate US 19. A curb would be added to the east side of the roadway. Portions of the existing TWLT lane would be converted to an 11-foot raised median with left turn bays. The sidewalk on the east side of the roadway would be widened to 6-feet. The southbound bicycle lane would be widened to 4-feet. **Figure 3.33** shows the proposed typical section for Alternate US 19 from Michigan Avenue to Ketch Circle.

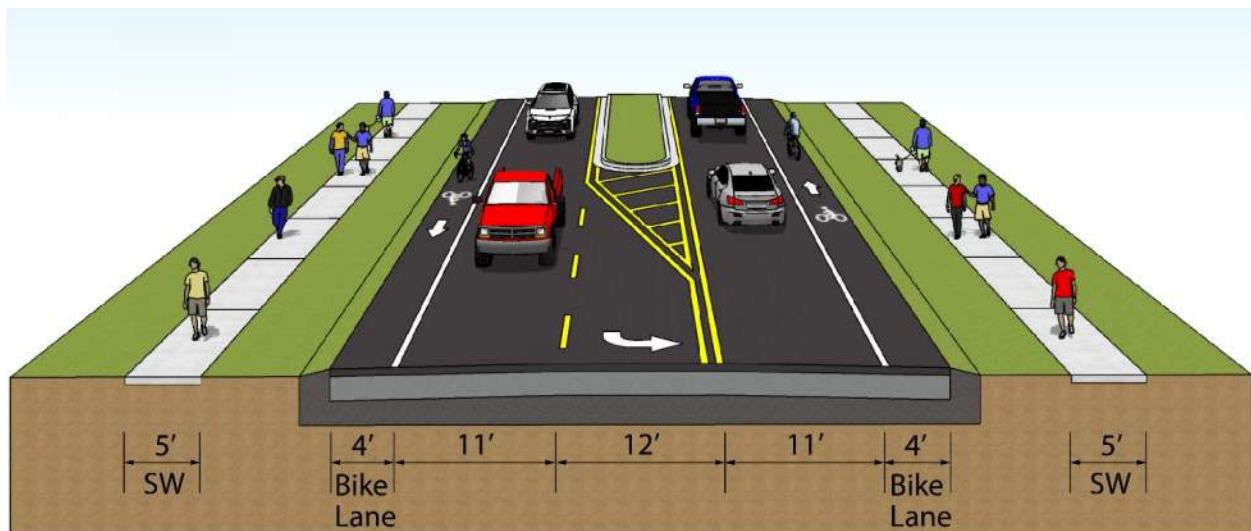
Figure 3.33 Proposed Typical Section from Michigan Avenue to Ketch Circle



Ketch Circle to Wai Lani Road

From Ketch Circle to Wai Lani Road, it is proposed to add portions of raised medians within the TWLT lane, along with adding left turn bays, in order to prevent motorists from utilizing the TWLT as a passing lane. **Figure 3.34** shows the proposed typical section for Alternate US 19 from Ketch Circle to Wai Lani Road.

Figure 3.34 Proposed Typical Section from Ketch Circle to Wai Lani Road





North of Dunn Drive to Harry Street and South of Klosterman Road

Along the west side of Alternate US 19 from north of Dunn Drive to Harry Street and for a short segment south of Klosterman Road, it is proposed to connect the existing sidewalk, in order to provide continuous pedestrian accommodations throughout the corridor.

3.6.3.2 Spot Improvements

Tampa Road Intersection

At Tampa Road, it is proposed to modify the existing northbound right turn lane to a shared through and right turn lane, to add a southbound left turn lane, and add a southbound through lane. The additional through lanes in the northbound and southbound directions would merge down to one lane downstream of the intersection. **Figure 3.35** shows the proposed improvements at the Tampa Road intersection.

Florida Avenue Intersection

At Florida Avenue, a single lane roundabout has been proposed as part of a FDOT Feasibility Study conducted in March 2015. This project is separate from this Alternate US 19 Corridor Study, but has been considered in the development of the proposed improvements for the corridor.

Ketch Circle Intersection

A new pedestrian midblock crosswalk with truncated domes has been proposed at Ketch Circle. This is to allow pedestrians the ability to safely access the PSTA bus stop on either side of the roadway. The proposed crosswalk at Ketch Circle would be the same as previously shown on **Figure 3.16**.



Figure 3.35 Proposed Improvements at Tampa Road





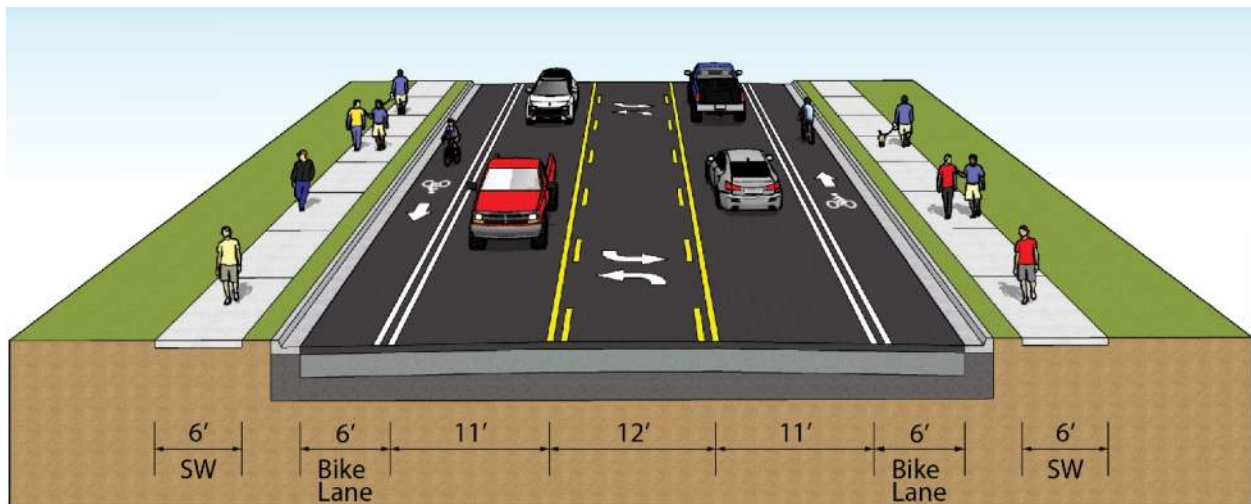
3.6.4 Tarpon Springs (Segment D)

3.6.4.1 Segment Improvements

Klosterman Road to Meres Boulevard

From Klosterman Road to Mere Boulevard, minor improvements have been proposed to the typical section along Alternate US 19. The existing open drainage system would be converted to a closed drainage system with curb and gutter, buffered bicycle lanes would be marked along the existing outside shoulders, and the sidewalks on both sides of the roadway would be widened to 6-feet. **Figure 3.36** shows the proposed typical section for Alternate US 19 from Klosterman Road to Meres Boulevard.

Figure 3.36 Proposed Typical Section from Klosterman Road to Meres Boulevard

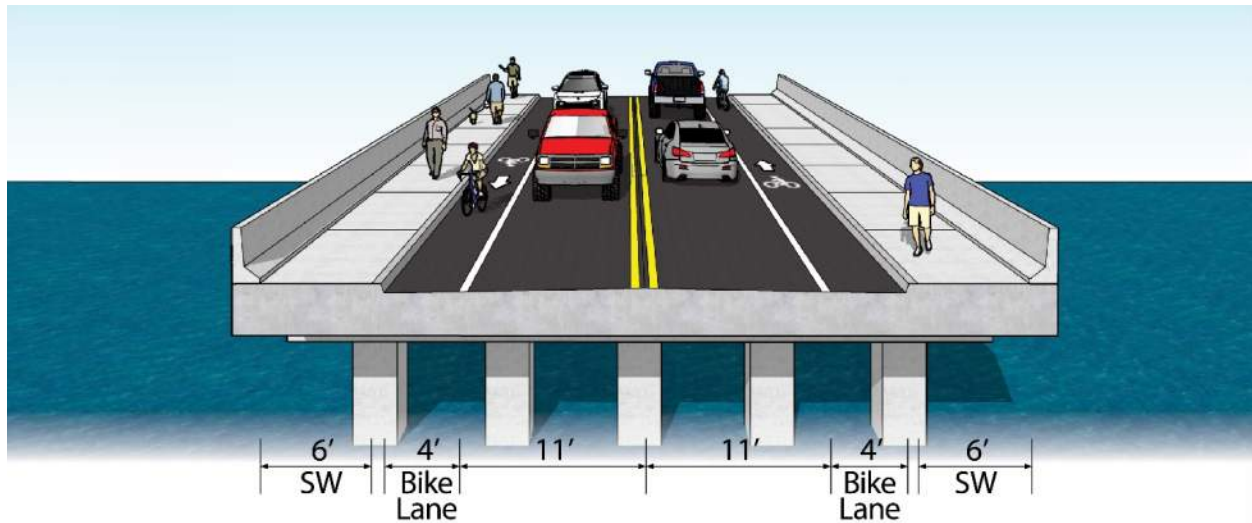


Anclote River Bridge

A sidewalk on the east side of Alternate US 19 and 4-foot bicycle lanes along each side of the corridor, across the Anclote River Bridge (Bridge No. 150006), have been proposed in order to provide continued bicycle and pedestrian accommodations throughout the corridor. Also, the guardrail between the southbound lane and sidewalk would be removed and new traffic railing would be added along each side of the bridge. The proposed improvements would require widening of the bridge. **Figure 3.37** shows the proposed typical section for Alternate US 19 along the Anclote River Bridge.



Figure 3.37 Proposed Typical Section along the Anclote River Bridge



Anclote River Bridge to Anclote Boulevard

New sidewalks are proposed along both sides of the Alternate US 19 from the Anclote River Bridge to Anclote Boulevard. Separate from this Alternate US 19 Corridor Study, sidewalk concepts were developed by the FDOT in May 2017 along both sides of Alternate US 19 from the Anclote River Bridge to Dixie Highway, at which point the design of the sidewalk on the east side of the corridor ends, but continues on the west side of the corridor to Anclote Boulevard. As part of this Alternate US 19 Corridor Study, it is proposed to continue the sidewalk along the east side of the corridor from Dixie Highway to Anclote Boulevard.

3.6.4.2 Spot Improvements

South of Cypress Street and Between Spruce Street and Cedar Street

New pedestrian midblock crosswalks with truncated domes have been proposed south of Cypress Street and between Spruce Street and Cedar Street to allow pedestrians more opportunities to safely cross the roadway along the 0.55 mile stretch between the Orange Street and Dodecanese Boulevard signalized intersections. This is in keeping with the overall vision of a bicycle and pedestrian friendly corridor. The proposed crosswalks south of Cypress Street and between Spruce Street and Cedar Street would be the same as previously shown on **Figure 3.24**.

North of Fulton Street

North of Fulton Street, a pedestrian midblock crosswalk has been proposed as part of the above mentioned sidewalk concept project developed by the FDOT in May 2017 from the Anclote River Bridge to Anclote Boulevard. This project is separate from this Alternate US 19 Corridor Study, but has been considered in the development of the proposed improvements for the corridor.



4 Alternatives Comparison

Several engineering and environmental analyses have been conducted to determine the benefits versus costs of the proposed improvements for the Alternate US 19 Corridor Study from Belleair Road to the Pinellas/Pasco County line, as compared to the No-Build Alternative. The subsequent sections summarize the traffic operations, multimodal characteristics, drainage impacts, environmental impacts, and costs for each of the proposed improvements.

4.1 Traffic Operational Analyses

Intersection analysis was conducted for each of the proposed improvements along Alternate US 19 from Belleair Road to the Pinellas/Pasco County line. Synchro 9 was utilized to conduct Highway Capacity Manual (HCM) signalized intersection analyses and Signalized & unsignalized Intersection Design and Research Aid (SIDRA) 7.0 was utilized to conduct HCM roundabout intersection analyses. The results of the design year (2040) intersection analyses for the AM and PM peak hour are shown in **Table 4.1**.

The results of the analysis indicate that the Belleair Road, Lakeview Road, and Druid Road intersection improvements are anticipated to result in increased delay as compared to the No-Build Alternative for the lane repurposing from Belleair Road to Court Street. However, the benefit of increased pedestrian and bicycle safety is expected to outweigh the reduced levels of traffic operations. Also, the Clearwater Plaza and Court Street at Missouri Avenue intersection improvements are anticipated to result in decreased delay as compared to the No-Build Alternative, even with the proposed lane repurposing.

As a result of the proposed lane repurposing from Chestnut Street to Marshall Street, an increase in delay is expected for each of the study intersections as compared to the No-Build Alternative. However, the benefit of increased pedestrian and bicycle safety is expected to outweigh the cost of decreased levels of traffic operations.

The proposed roundabout at the Fairmont Street intersection is anticipated to result in an increase in delay as compared to the No-Build Alternative, but the benefit of increased pedestrian and bicycle safety is expected to outweigh the cost of decreased levels of traffic operations.

Within Downtown Dunedin, the proposed roundabout and signalized alternatives at the Marina Plaza and Main Street intersections are anticipated to result in an overall decrease in delay as compared to the No-Build Alternative. In addition, both alternatives are expected to mitigate vehicle queue spillback between the two intersections.

At the Causeway Boulevard/Curlew Road intersection, each of the Build Alternatives is expected to result in decreased delays, as compared to the No-Build Alternative. Of the four Build Alternatives, the CFI is anticipated to exhibit the least amount of vehicle delay, whereas the MUT is expected to be the safest design for pedestrians and bicyclists.

At the Tampa Road intersection, the proposed improvements are expected to result in decreased delays, as compared to the No-Build Alternative.



Table 4.1 Operational Analysis of Intersection Improvements

Segment	Alternate US 19 Intersection	No-Build Alternative			Build Alternative		
		Control Type	AM	PM	Control Type	AM	PM
A	Belleair Rd	Signal	56.9	67.9	Signal	76.6	87.3
	Lakeview Rd	Signal	42.4	44.0	Roundabout	99.5	77.5
	Clearwater Plaza	Signal	33.1	31.8	Signal	19.1	20.1
	Druid Rd	Signal	38.3	39.3	Roundabout	80.0	81.3
	Court St (at Missouri Ave)	Signal	185.2	120.9	Signal	123.2	84.0
	Chestnut St	Signal	23.7	34.2	Signal	29.8	43.9
	Court St (at Myrtle Ave)	Signal	30.4	27.2	Signal	36.3	45.6
	Cleveland St	Signal	13.4	13.5	Signal	33.8	16.6
	Drew St	Signal	48.0	27.3	Signal	52.3	31.6
	Seminole St	Signal	3.2	2.8	Signal	4.3	3.4
	Palmetto St	Signal	2.5	2.1	Signal	2.9	2.8
	Marshall St	Signal	10.3	8.2	Signal	10.4	9.1
	Fairmont St	Signal	17.1	14.8	Roundabout	17.9	21.3
B	Marina Plaza	Stop	56.4	12.1	Roundabout	4.1	7.1
					Signal	23.1	24.8
	Main St	Signal	33.2	117.6	Roundabout	37.8	8.1
					Signal	15.1	21.0
					Signal	54.8	50.6
					E-W DLT	45.8	41.9
Curlew Blvd	Signal	93.0	82.9	CFI	41.8	36.0	
				MUT	55.0	50.3	
C	Tampa Rd	Signal	77.0	85.4	Signal	42.9	51.4

4.2 Multimodal Characteristics

The Alternate US 19 corridor is being studied to identify short and long-term improvements that will address transportation needs for all users as well as the long-term vision for the corridor. The intent of the study is to identify potential solutions for the corridor that will encourage multimodal travel options and establish a more walkable, bicycle-friendly, and transit oriented community and environment.

The Study is using FDOT’s Complete Streets policy to showcase how Complete Streets approaches can shape a corridor. Complete Streets are defined as streets for everyone. They are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities.

Various multimodal improvements were considered along Alternate US 19 to provide a safer and more pedestrian and bicycle friendly corridor. **Table 4.2** summarizes the proposed multimodal improvements along Alternate US 19 from Belleair Road to the Pinellas/Pasco County line. In addition to the enhanced pedestrian and bicycle accommodations proposed for the Alternate US 19 corridor, the FDOT and PSTA will work together to identify opportunities to incorporate bus pullouts in future design plans for the transportation improvements proposed along the Alternate US 19 corridor.



Table 4.2 Proposed Multimodal Improvements

Segment	Alternate US 19 Location	Existing Accommodations	Proposed Improvements
A	Belleair Road to Court Street	Sidewalks	New buffered bicycle lanes
	Between Woodlawn Street and Bellevue Boulevard	None	New pedestrian midblock crosswalk
	Between Franklin Street and Pierce Street	None	New pedestrian midblock crosswalk
	Between Pierce Street and Park Street	None	New pedestrian midblock crosswalk
	Drew Street to Marshall Street	Sidewalks	New buffered bicycle lanes
	Pinellas Trail Crossing	Midblock crossing	Update existing crossing
	Stevenson Creek Bridge	Sidewalk on the west side of the bridge	New sidewalk on the east side and updated sidewalk on the west side of the bridge
	Sunset Point Road to Union Street	Pedestrian midblock crosswalks south of Granada Street and between Commodore Street and Marine Street	New pedestrian midblock crosswalks north of Sedeeva Street and south of Union Street
B	Union Street to Main Street	Pedestrian midblock crosswalk north of Albert Street	New pedestrian midblock crosswalks south of Orangewood Drive, south of Florida Avenue, and at the Fenway Hotel
	Josiah Cephus Weaver Park	Pedestrian midblock crosswalk	Update existing crosswalk
	Curlew Creek Bridge	None	New sidewalk on the west side of the bridge and bicycle lanes
C	Virginia Avenue to Michigan Avenue	Sidewalk on the west side of the roadway and bicycle lanes	New sidewalk on the east side of the roadway
	Michigan Avenue to Ketch Circle	Sidewalk on the east side of the roadway and bicycle lanes	New sidewalk on the east side of the roadway
	Ketch Circle	None	New pedestrian midblock crosswalk
	Dunn Drive to Harry Street	Sidewalk on the east side of the roadway	New sidewalk on the west side of the roadway
	South of Klosterman Road	Sidewalk on the east side of the roadway	New sidewalk on the west side of the roadway
D	Klosterman Road to Meres Boulevard	Paved shoulders and sidewalks	Updated buffered bicycle lanes and sidewalks
	South of Cypress Street to between Spruce Street and Cedar Street	Pedestrian midblock crosswalk at Pine Street	New pedestrian midblock crosswalks south of Cypress Street and between to Spruce Street and Cedar Street
	Anclote River Bridge	Sidewalk on the west side of the bridge	New sidewalk on the east side of the bridge and bicycle lanes
	Dixie Highway to Anclote Boulevard	None	New sidewalk on the east side of the roadway



4.3 Drainage Needs and Impacts

A *Drainage Technical Memorandum* (DTM) was prepared for the Alternate US 19 Corridor Study from Belleair Road to the Pinellas/Pasco County line. The purpose of the DTM is to analyze the existing drainage conditions, assess impacts associated with the proposed action, and identify potential sites for floodplain mitigation and stormwater management facilities along the Alternate US 19 study corridor. Each segment of the study area was subdivided into roadway drainage basins in order to evaluate the impacts to water quality, water quantity, and floodplains. The recommended segment and spot improvements within each basin were analyzed to determine the need for stormwater management and floodplain compensation.

4.3.1 Drainage Basins

Table 4.3 summarizes the drainage basins along Alternate US 19 from Belleair Road to the Pinellas/Pasco County line, along with the recommended improvements within each basin.

4.3.2 Stormwater Management

The improvements within each of the 21 basins delineated for this study were evaluated to establish stormwater management needs. **Table 4.4** summarizes the results of this analysis. Several of the basins require stormwater management due to the following impacts:

- Intersection improvements/reconfiguration
- Added through lanes (increased roadway capacity)
- Increased impervious area, mainly due to the addition of sidewalks
- Filling in of existing ditches that are currently providing (unpermitted) treatment

Stormwater management facilities are required in twelve (12) of the basins. The most significant impacts are in Segment B and are associated with the reconfiguration of the Marina Plaza and Main Street intersections and the improvements at the Causeway Boulevard/Curlew Road intersection. It may be possible to combine some of the smaller basins in order to reduce the number of stormwater management facilities and, therefore, decrease the overall number of parcels impacted. This would be limited to combining basins that share a common watershed.



Table 4.3 Drainage Basins

Segment	Basin	Location	Recommended Improvements
A	A1	Belleair Road to Court Street	<ul style="list-style-type: none"> • Additional westbound left turn lane at Belleair Road • Roundabout at Lakeview Road • Roundabout at Druid Road • Additional northbound and westbound left turn lanes at Court Street and Missouri Avenue
	A2	Court Street to Drew Street	Recommended improvements are limited to lane repurposing.
	A3	Drew Street to Marshall Street	Recommended improvements are limited to lane repurposing and midblock crossing at the Pinellas Trail.
	A4	Marshall Street to Sunset Point Road	<ul style="list-style-type: none"> • Lane repurposing • Sidewalk accommodations across the east side of the Stevenson Creek Bridge • Roundabout at Fairmont Street
B	B1	Sunset Point Road to Albert Street	Recommended improvements are limited to lane repurposing and the addition of several pedestrian midblock crosswalks with truncated domes.
	B2	Albert Street to Main Street	<p>Recommended improvements include reconfiguration of the Marina Plaza and Main Street intersections. Two concepts have been proposed:</p> <ul style="list-style-type: none"> • Install two back-to-back, one-lane roundabouts (Dog Bone Roundabout) that would be connected to make one large, continuous roundabout between the two intersections. • Reorient the Marina Plaza intersection and add a traffic signal. The new traffic signal at Marina Plaza would be clustered with the Main Street intersection so that they would act as one intersection.
	B3	Skinner Boulevard to south of Wilson Street	Recommended improvements are limited to lane repurposing.
	B4	South of Curlew Creek to south of the Pinellas Trail pedestrian bridge	<p>Recommended improvements include the widening of the bridge over Curlew Creek and reconfiguration of the Causeway Boulevard/Curlew Road intersection. Four concepts for the intersection have been proposed:</p> <ul style="list-style-type: none"> • Add a northbound through lane, convert the southbound right turn lane to a shared through and right turn lane, add a westbound left turn lane, and merge the northbound and southbound through movements from two lanes to one lane downstream of the intersection. • Add DLTs in the eastbound and westbound directions. • Add DLTs at all approaches of the intersection, also known as a CFI. • Convert the intersection into a northbound and southbound MUT intersection.
C	C1	540 feet north of Wexford Leas Boulevard to north of Virginia Avenue	Additional through lanes will be added at the Tampa Road intersection. The additional through lanes would merge down to one lane downstream of the intersection.
	C2	North of Virginia Avenue to Nebraska Avenue	<ul style="list-style-type: none"> • Between Virginia Avenue and Michigan Avenue, the existing open drainage system would be converted to a closed drainage system with curb and gutter and bicycle lanes would be delineated and marked along the existing outside shoulders • From Michigan Avenue to Nebraska Avenue, the existing open drainage system on the east side of the roadway would be converted to a closed drainage system with curb and gutter • Roundabout at Florida Avenue



Table 4.3 (Continued) Drainage Basins

Segment	Basin	Location	Recommended Improvements
C	C3	Nebraska Avenue to Delaware Avenue	The existing open drainage system on the east side of the roadway would be converted to a closed drainage system with curb and gutter.
	C4	Delaware Avenue to Ketch Circle	<ul style="list-style-type: none"> The existing open drainage system on the east side of the roadway would be converted to a closed drainage system with curb and gutter New pedestrian midblock crosswalk with truncated domes has been proposed at Ketch Circle
	C5	100 feet north of Dunn Drive to the Pinellas Trail overpass	Along the west side of Alternate US 19, it is proposed to connect the existing sidewalk in order to provide continuous pedestrian accommodations throughout the corridor.
	C6	Pinellas Trail overpass to Harry Street	Along the west side of Alternate US 19, it is proposed to connect the existing sidewalk, in order to provide continuous pedestrian accommodations throughout the corridor.
	C7	South of Klosterman Road	Along the west side of Alternate US 19, it is proposed to connect the existing sidewalk in order to provide continuous pedestrian accommodations throughout the corridor.
D	D1	Klosterman Road to 700 feet north of Terrace Road	The existing open drainage system would be converted to a closed drainage system with curb and gutter and bicycle lanes would be delineated and marked along the existing outside shoulders.
	D2	700 feet north of Terrace Road to 600 feet north of St. Andrews Drive	The existing open drainage system would be converted to a closed drainage system with curb and gutter and bicycle lanes would be delineated and marked along the existing outside shoulders.
	D3	600 feet north of St. Andrews Drive to the Tarpon Bend Professional Center driveway	The existing open drainage system would be converted to a closed drainage system with curb and gutter and bicycle lanes would be delineated and marked along the existing outside shoulders.
	D4	The Tarpon Bend Professional Center driveway to Orange Street	From the Tarpon Bend Professional Center driveway to Meres Boulevard, the existing open drainage system would be converted to a closed drainage system with curb and gutter and bicycle lanes would be delineated and marked along the existing outside shoulders.
	D5	250 feet south of the Anclote River and ends 300 feet north of the bridge	Recommended improvements include the widening of the bridge over the Anclote River in order to provide continuous bicycle and pedestrian accommodations.
	D6	300 feet north of the Anclote River to the Pinellas/Pasco County Line	Recommended improvements include new sidewalks along both sides of Alternate US 19 from the Anclote River Bridge to Anclote Boulevard.



Table 4.4 Stormwater Management Summary

Segment	Basin	Water Quality		Water Quantity		Right of Way Area needed for Stormwater Management
		Required?	Comments	Required?	Comments	
A	A1	No	No roadway capacity added	Yes	Improvements increase the overall basin area	0.9 acres
	A2	No	No roadway capacity added	No	No increase in impervious area	-
	A3	No	No roadway capacity added	No	No increase in impervious area	-
	A4	No	No roadway capacity added	No	Tidal Outfall	-
B	B1	No	No roadway capacity added	No	Tidal Outfall	-
	B2	Yes	Complete reconstruction	No	Tidal Outfall	1.6 acres
	B3	No	No roadway capacity added	No	No increase in impervious area	-
	B4	Yes	Curlew Road intersection	No	Tidal Outfall	2.0 acres *
C	C1	Yes	Tampa Road intersection	Yes	Increased impervious area	0.8 acres
	C2	Yes	Filling existing ditches	Yes	Increased impervious area	0.7 acres
	C3	Yes	Filling existing ditches	No	No increase in impervious area	0.4 acres
	C4	Yes	Filling existing ditches	No	No increase in impervious area	0.7 acres
	C5	No	No roadway capacity added	No	Tidal Outfall	-
	C6	No	No roadway capacity added	No	Added minor sidewalk impervious area	-
	C7	No	No roadway capacity added	No	Added minor sidewalk impervious area	-
D	D1	Yes	Filling existing ditches	No	No increase in impervious area	0.4 acres
	D2	Yes	Filling existing ditches	No	No increase in impervious area	0.6 acres
	D3	Yes	Filling existing ditches	No	No increase in impervious area	0.2 acres *
	D4	Yes	Filling existing ditches	No	No increase in impervious area	0.3 acres
	D5	Yes	Bridge widening	No	Tidal Outfall	0.2 acres
	D6	No	No roadway capacity added	No	Tidal Outfall	-

* Stormwater management may be accommodated within the existing right-of-way.



4.3.3 Floodplains

The study corridor crosses the 100-year base floodplain (Zone A and Zone AE) at eighteen (18) separate locations as shown on the FEMA FIRMs in **Appendix C**. Encroachment (fill) into the 100-year base floodplain will require compensation per FDOT and SWFWMD criteria. Zone VE is considered a tidal floodplain and will not require compensation for any impacts.

Each of the potential impact locations identified on the FEMA FIRMs has been evaluated to determine if floodplain compensation will be required. The results are summarized in **Table 4.5**.

Table 4.5 Floodplain Compensation Summary

Segment	Map ID Number *	FEMA Flood Zone	Base Flood EL (ft, NAVD 88)	Impacts to the Base Floodplain	Remarks
A	1	A	-	No	Lane repurposing only
	2	AE	11, 12, 13	No	Addition of sidewalk; Tidal floodplain
	3	AE	12, 13	No	Lane repurposing only
B	4	AE	13	No	Lane repurposing only
	5	AE	11, 12, 13	Yes	Marina Plaza and Main Street impacts
	6	AE	11, 12, 13	No	No improvements proposed
B and C	7	AE	11, 12, 13	Yes *	Curlew Creek bridge widening (Regulatory Floodway); Causeway Boulevard improvements
C	8	AE	11	Yes	Widening at Tampa Road
	9	AE	11	No	Lane repurposing only
	10	AE	11, 12	No	Minor improvements; no fill added
	11	AE	10	No	No improvements proposed
	12	AE	10	No	No improvements proposed
	13	AE	11, 12	No	No improvements proposed
	14	AE	10, 12	No	No improvements proposed
C and D	15	AE	10	Yes	Addition of sidewalk south of Klosterman Rd
D	16	AE	10	No	No improvements proposed
	17	AE	10	No	No improvements proposed
	18	AE	9, 10	Yes *	Anclote River bridge widening (Regulatory Floodway); addition of sidewalks

* A FEMA No-Rise Certification will likely be required.

Please refer to the DTM for a more detailed discussion of the drainage analysis, stormwater management and floodplain calculations, and drainage map exhibits.



4.4 Environmental Impacts

A desktop analysis of environmental issues was performed using the available Geographic Information Systems (GIS) data from the FDOT Environmental Screening Tool (EST). An Area of Interest (AOI) was generated based on a 100-foot buffer from the centerline of the existing Alternate US 19 alignment. This buffer was used as the study area and was overlain on several types of spatial datasets to characterize the existing conditions along the segments of the Alternate US 19 corridor. This baseline data provided the basis upon which a more detailed environmental assessment was conducted to summarize pertinent environmental features along the project corridor and assess potential for effect associated with the conceptual alternatives. The environmental issues evaluated are the elements of a Type 2 Categorical Exclusion. **Table 4.6** identifies the environmental issues associated with a Type 2 Categorical Exclusion and the potential involvement with this project. The following text includes a discussion of the environmental issues summarized in **Table 4.6**.

Table 4.6 Type 2 Categorical Exclusion Environmental Issues

Issues/Resources	Potential Impacts	Enhancement	No Involvement
<i>Social and Economic</i>			
Social	X	-	-
Economic	X	-	-
Land Use Changes	X	-	-
Mobility	-	X	-
Aesthetic Effects	X	-	-
Relocation Potential	X	-	-
Farmland	-	-	X
<i>Cultural</i>			
Section 4(f)	X	-	-
Historic Sites/Districts	X	-	-
Archaeological Sites	X	-	-
Recreational Areas	X	-	-
<i>Natural</i>			
Wetlands and Other Surface Water	X	-	-
Aquatic Preserves and Outstanding Florida Waters	X	-	-
Water Quality and Water Quantity	X	-	-
Wild and Scenic Rivers	-	-	X
Floodplains	X	-	-
Coastal Zone Consistency	X	-	-
Coastal Barrier Resources	-	-	X
Protected Species and Habitat	X	-	-
Essential Fish Habitat (EFH)	X	-	-
<i>Physical</i>			
Highway Traffic Noise	X	-	-
Air Quality	X	-	-
Contamination	X	-	-
Utilities and Railroads	X	-	-
Construction	X	-	-
Bicyclists and Pedestrians	-	X	-
Navigation	X	-	-



4.4.1 Social and Economic

Social

A sociocultural evaluation was completed as part of the Existing Conditions Report associated with the Corridor Study. The report indicated somewhat stagnant population, housing, and land use trends in Pinellas County. This is representative of a county which is almost completely built-out. While access to proximate residences, businesses, and recreational features could be temporarily affected during project construction, the proposed improvements should have minimal negative effects on the social environment.

Economic

A sociocultural evaluation was completed as part of the Existing Conditions Report. The report indicated somewhat stagnant land use trends in Pinellas County. This is representative of a county which is almost completely built-out. The proposed improvements should have minimal impacts on economic factors.

Land Use Changes

A sociocultural evaluation was completed as part of the Existing Conditions Report. The report indicated somewhat stagnant land use trends in Pinellas County. This is representative of a county which is almost completely built-out. The proposed improvements should have minimal impacts on land use.

Mobility

The proposed multimodal transportation improvements should enhance travel conditions, mobility, safety, and operations on Alternate US 19.

Aesthetic Effects

The proposed multimodal transportation improvements should have no significant impact on aesthetic issues.

Relocation Potential

Numerous residential and commercial properties are located along the project corridor. There is a potential for residential, commercial, and/or business relocations in the areas requiring additional right-of-way. Relocations will need to be thoroughly evaluated during the PD&E process. In accordance with Part 2, Chapter 4 of FDOT's PD&E Manual, a *Conceptual Stage Relocation Plan* may be prepared to identify community characteristics, analyze the impact of the project on the community and to identify residences and businesses that would be impacted.

Farmland

The proposed project has no involvement with farmlands.



4.4.2 Cultural

Section 4(f)

The project will need to be examined for potential Section 4(f) resources in accordance with Section 4(f) of the Department of Transportation Act of 1966 (Title 49, United States Code (USC), Section 1653(f), amended and recodified in Title 49, USC, Section 303, in 1983). A Section 4(f) *Determination of Applicability* (DOA) will need to be prepared for each potential resource.

A review of the available GIS and published information was performed to identify known recreational and Section 4(f) resources within the project area. There are a variety of local recreational lands within the study area, consisting primarily of small, city or county owned facilities. No state or federally owned lands were identified. Potential Section 4(f) resources include:

- Segment A (Belleair Road to Union Street): There are three potential Section 4(f) resources.
 - Pinellas Trail (Pinellas County)
 - Honeymoon Island to Pinellas Trail Connector (Pinellas County)
 - Shuffleboard and Lawn Bowls Complex (City of Clearwater)
- Segment B (Union Street to Curlew Road): There are nine potential Section 4(f) resources.
 - Pinellas Trail (Pinellas County)
 - John Grant Hubbard Park (City of Dunedin)
 - Edgewater Park and Boat Ramp (City of Dunedin)
 - Armston Park (City of Dunedin)
 - Purple Heart Park (City of Dunedin)
 - Josia Cephus Weaver Park (City of Dunedin)
 - Wilson Street Park (City of Dunedin)
 - Hammock Park (City of Dunedin)
 - Dunedin Golf Club (City of Dunedin)
- Segment C (Curlew Road to Klosterman Road): There are four potential Section 4(f) resources.
 - Pinellas Trail (Pinellas County)
 - Dunedin Youth Guild Park (City of Dunedin)
 - Southerland Bayou Public Boat Ramp (Pinellas County)
 - Wall Springs Park (Pinellas County)
- Segment D (Klosterman Road to the Pinellas/Pasco County Line): There are two potential Section 4(f) resources.
 - Pinellas Trail (Pinellas County)
 - Tarpon Springs Golf Course (City of Tarpon Springs)

Based on the concept plans, in order to accommodate the proposed improvements, minor adjustments to the Pinellas Trail will be required at Florida Avenue, Curlew Road, and in downtown Dunedin. In accordance with Section 4(f), these impacts will need to be evaluated during the PD&E process and may qualify as a Temporary Occupancy.

In addition, right of way may be required from Edgewater Park, Armston Park, and Purple Heart Park in downtown Dunedin. This right of way acquisition would constitute a Section 4(f) use. In accordance with Section 4(f), these impacts will need to be evaluated during the PD&E process. If mitigation is provided and concurrence is obtained from the officials with jurisdiction (City of Dunedin), the Section 4(f) use may qualify for a *de minimis* determination.



Historic Sites/Districts

As part of the Existing Conditions Report, a review of the available GIS and published information was performed to identify cultural resource potential and previously recorded historic properties that are listed, or may be eligible for listing in the National Register of Historic Places (NRHP). Eighty-eight (83) previously recorded historic resources were identified along the project corridor, including 77 Structures, 5 Resource Groups, and one Bridge:

Structures:

- 66 Not Evaluated by Florida State Historic Preservation Officer (SHPO)
- 6 Determined Ineligible
- 5 NRHP-Listed
 - J.O. Douglas House (PI235: NRHP 11/29/1979)
 - Willis S. Blatchley House (PI11701: NRHP 9/23/2009)
 - Arcade Hotel (PI870: NRHP 1/12/1984)
 - Tarpon Springs Old City Hall (PI1578: NRHP 8/10/1990)
 - N. G. Arfaras Company, Inc (P1545: NRHP 4/10/1991)

Resource Groups:

- Douglas Farm (Not Evaluated by SHPO)
- Meres Park (Not Evaluated by SHPO)
- Tarpon Springs Historic District (NRHP 12/6/1990)
 - 145 Contributing Resources
- Tarpon Springs Greektown Historic District (NRHP 6/2/2014)
 - 282 Contributing Resources
- Dunedin County Club Golf Course (NRHP 6/4/2014)

Bridge:

- Curlew Creek Bridge No. 150046 (Not Evaluated by SHPO)

The majority of documented historic resources are within Segments A and D. The likelihood of additional resources being identified along the project corridor, especially in these areas, is high. With additional analysis, it is possible that over 1,000 additional historic resources (50 years of age or older) could be documented. Historic resources will need to be thoroughly evaluated during the PD&E process and a *Cultural Resource Assessment Survey* (CRAS) will need to be prepared.

Archaeological Sites

As part of the Existing Conditions Report, a review of the available GIS and published information was performed to identify archaeological resources. Five (5) previously recorded archaeological sites were identified along the project corridor:

Archaeological Sites (None Evaluated by SHPO)

- 2 Insufficient Information (Dunedin Mound (8PI00017) and Trenner (8PI02250))
- 3 not evaluated by SHPO (Safford Mound (8PI00003), Clearwater Mound (8PI00010), and Wall Springs Coastal Addition (8PI11961))

The majority of documented historic resources are within Segments A and D. The likelihood of additional resources being identified along the project corridor, especially in these areas, is high.



Archaeological resources will need to be thoroughly evaluated during the PD&E process and a CRAS will need to be prepared.

Recreational Areas

A review of the available GIS and published information was performed to identify known recreational resources within the project area. There are a variety of local recreational lands within the study area, consisting primarily of small, city or county owned facilities. No state or federally owned lands were identified. Recreational areas identified include:

- Segment A (Belleair Road to Union Street): There are three recreational areas.
 - Pinellas Trail (Pinellas County)
 - Honeymoon Island to Pinellas Trail Connector (Pinellas County)
 - Shuffleboard and Lawn Bowls Complex (City of Clearwater)
- Segment B (Union Street to Curlew Road): There are nine recreational areas.
 - Pinellas Trail (Pinellas County)
 - John Grant Hubbard Park (City of Dunedin)
 - Edgewater Park and Boat Ramp (City of Dunedin)
 - Armston Park (City of Dunedin)
 - Purple Heart Park (City of Dunedin)
 - Josia Cephus Weaver Park (City of Dunedin)
 - Wilson Street Park (City of Dunedin)
 - Hammock Park (City of Dunedin)
 - Dunedin Golf Club (City of Dunedin)
- Segment C (Curlew Road to Klosterman Road): There are four recreational areas.
 - Pinellas Trail (Pinellas County)
 - Dunedin Youth Guild Park (City of Dunedin)
 - Southerland Bayou Public Boat Ramp (Pinellas County)
 - Wall Springs Park (Pinellas County)
- Segment D (Klosterman Road to the Pinellas/Pasco County Line): There are two recreational areas.
 - Pinellas Trail (Pinellas County)
 - Tarpon Springs Golf Course (City of Tarpon Springs)

In order to accommodate the proposed improvements, minor adjustments to the Pinellas Trail will be required at Florida Avenue, Curlew Road, and in downtown Dunedin. In addition, right of way may be required from Edgewater Park, Armston Park, and Purple Heart Park in downtown Dunedin.

4.4.3 Natural

Wetlands and Other Surface Waters

Wetlands and other surface waters are found within the project corridor and consist of freshwater herbaceous, freshwater forested, estuarine forested, and estuarine open water systems. Named water bodies within the corridor include Stephenson Creek, Cedar Creek, Curlew Creek, and the Anclote River. Due to the developed nature of the corridor, wetland and other surface water impacts should be limited. In addition, wetland and other surface water impacts will need to be mitigated in accordance with State and Federal requirements. Wetland and other surface waters will need to be thoroughly evaluated during the PD&E process and a *Natural Resources Evaluation* prepared.



Aquatic Preserves and Outstanding Florida Waters

An OFW is a water designated worthy of special protection because of its natural attributes. This special designation is intended to protect existing good water quality. An Aquatic Preserve is defined as “an exceptional area of submerged lands and its associated waters set aside for being maintained essentially in its natural or existing condition.” All aquatic preserves are designated as OFWs. All open waters of Pinellas County are designated as part of the Pinellas County Aquatic Preserve and therefore, OFWs. Within the project corridor, this includes Stephenson Creek, Cedar Creek, Curlew Creek, the Anclote River, and a wetland system at Orange Street. Discharges and any impacts to OFWs will need to be thoroughly evaluated during the PD&E process and a *Natural Resources Evaluation and Water Quality Impact Evaluation* prepared.

Water Quality and Water Quantity

The corridor crosses the following Pinellas County Watersheds, from south to north:

- Segment A (Belleair Road to Union Street): Crosses three watersheds.
 - Stevenson Creek
 - Coastal Zone 1
 - Coastal Zone 4
- Segment B (Union Street to Curlew Road): Crosses four watersheds.
 - Coastal Zone 4
 - Clearwater Harbor North
 - Cedar Creek
 - Curlew Creek
- Segment C (Curlew Road to Klosterman Road): Crosses five watersheds.
 - Clearwater Harbor North
 - Curlew Creek
 - Smith Bayou
 - Sutherland Bayou
 - Klosterman Bayou
- Segment D (Klosterman Road to the Pinellas/Pasco County Line): Crosses two watersheds.
 - Klosterman Bayou
 - Anclote River

On the current FDEP 303(d) Impaired Waters List, Curlew Creek (WBID 1538) within Segment B is verified as impaired for nutrients; Klosterman Bayou (WBID 1508) within Segment C and the Anclote River (WBID 1440A) within Segment D are both verified as impaired for DO. Pollutant loading analysis will be required for any direct discharge to these three WBIDs. In addition, portions of the study corridor discharge directly into the Pinellas County Aquatic Preserve which is designated as an OFW. SWFWMD requires an additional 50% treatment volume for any direct discharge into OFW.

Water quality and water quantity issues will need to be evaluated during the PD&E process and a *Stormwater Management Facility Siting Report* prepared to ensure that the proposed project meets state water quality standards.

Wild and Scenic Rivers

There are no designated Wild and Scenic Rivers in the project area.



Floodplains

FEMA has designated locations of the 100-year base floodplain within the project corridor. The study corridor crosses the following flood zones:

- Zone X - Areas determined to be outside the 500-year floodplain
- Zone X (shaded) - Areas of 500-year flood
- Zone A - Special flood hazard area inundated by the 100-year flood with no base flood elevations determined
- Zone AE - Special flood hazard area inundated by the 100-year flood with base flood elevations determined
- Zone VE - Coastal flood with velocity hazard (wave action); base flood elevations determined

Encroachment (fill) into Zone A and Zone AE (100-year base floodplain) will require compensation per FDOT and SWFWMD criteria.

In addition, the Curlew Creek within Segment B and Anclote River within Segment D crossings are each classified as a "Regulatory Floodway". A "Regulatory Floodway" refers to the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Communities must regulate development in these floodways to ensure that there are no increases in upstream flood elevations; therefore, a FEMA No-Rise Certification will be required during the design phase for these two crossings.

Coastal Zone Consistency

As part of the Efficient Transportation Decision Making (ETDM) project screening, the State of Florida will determine if the project is consistent with the Florida Coastal Zone Management Plan.

Coastal Barrier Resources

There are no Coastal Barrier Resources in the project area.

Protected Species and Habitat

As part of the Existing Conditions Report, a review of the available GIS and published information was performed to identify any potential for threatened or endangered species to occur within the study area. Based on the EST GIS analysis, several federally listed species have the potential to occur within Pinellas County, including the West Indian Manatee (*Trichechus manatus*), Florida scrub jay (*Aphelocoma coerulescens*), piping plover (*Charadrius melodus*), red-cockaded woodpecker (*Picoides borealis*), wood stork (*Mycteria americana*), gulf sturgeon (*Acipenser oxyrinchus desotoi*), eastern indigo snake (*Drymarchon corais couperi*), American alligator (*Alligator mississippiensis*), and several species of sea turtles. The study area within the Consultation Area for the West Indian Manatee and Piping Plover. No designated Critical Habitat is present within the project study area.

Several state listed species has the potential to occur within the study area, the gopher tortoise (*Gopherus polyphemus*), Florida sandhill crane (*Antigone canadensis pratensis*), burrowing owl (*Athene cunicularia floridana*), snowy plover (*Charadrius nivosus*), little blue heron (*Egretta caerulea*), reddish egret (*Egretta rufescens*), tricolor heron (*Egretta tricolor*), Southeastern American kestrel (*Falco sparverius paulus*), American oystercatcher (*Haematopus palliatus*), roseate spoon bill



(*Platalea ajaja*), black skimmer (*Rynchops niger*), least tern (*Sternula antillarum*), and Sherman's fox squirrel (*Sciurus niger shermani*).

The bald eagle (*Haliaeetus leucocephalus*) was delisted from protection under the Endangered Species Act in 2007. However, the bald eagle is still protected under the Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act, and State law. Two (2) nests have been documented in the vicinity of the project corridor (Nest PI045 and PI060).

Due to the developed nature of the corridor, involvement of protected species should be limited. Segment D has the most potential for involvement due to pockets of natural areas adjacent to and in the vicinity of the project corridor. Also, any in-water work associated with bridge crossings will have potential involvement with protected species.

Protected species involvement will need to be thoroughly evaluated during the PD&E process and included in the *Natural Resources Evaluation*.

Essential Fish Habitat

As part of the Existing Conditions Report, a review of the available GIS and published information was performed to identify any potential Essential Fish Habitat (EFH) within the study area. Estuarine open water and mangrove habitats are located in the project corridor and are considered EFH. Bridge crossings near the mouths of the Anclote River (Segment D), Curlew Creek (Segment B), and Stevenson Creek (Segment A) may impact EFH.

EFH involvement will need to be thoroughly evaluated during the PD&E process and included in the *Natural Resources Evaluation*.

4.4.4 Physical

Highway Traffic Noise

As part of the Existing Conditions Report, a review of the available GIS and published information was performed to identify any potential noise sensitive sites within the study area. Given the length of the Alternate US 19 Corridor, it is not surprising to find noise sensitive land uses present throughout all segments. Noise sensitive sites that meet certain land use categories include residential communities, cemeteries, community centers, civic centers, cultural centers, day care centers, golf courses, government buildings, health facilities and hospitals, places of worship, public pools, schools, trails and parks.

Traffic noise will need to be thoroughly evaluated during the PD&E process and a *Noise Study Report* prepared.

Air Quality

The proposed improvements is in an area that is designated attainment for all of the National Ambient Air Quality Standards (NAAQS) under the criteria provided in the Clean Air Act. Therefore, the Clean Air Act conformity requirements do not apply to this project.

Contamination

As part of the Existing Conditions Report, a review of the available GIS and published information was performed to identify any potential contamination issues within the study area.



The review identified facilities, sites, or places subject to environmental regulation or of environmental interest. Search distances are stipulated in for desktop contamination screenings are identified in the FDOT PD&E Manual Part 2, Chapter 20. The following buffer distances from the right-of-way are recommended: 500 feet for petroleum, drycleaners, and non-petroleum sites; 1,000 feet for non-landfill solid waste sites; and ½ mile for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), National Priorities List (NPL), or landfill sites. The preliminary screening identified 425 contamination sources within the project limits and therefore presents the possibility for contamination involvement. The majority of the potentially contaminated sites identified are within Segment A and D.

Contamination will need to be thoroughly evaluated during the PD&E process and a *Contamination Screening Evaluation Report* prepared.

Utilities and Railroads

Several utilities are located within the study area. In addition, there is one active railroad (Chessie-Seaboard Merger (CSX) Railroad) within the project limits that crosses Alternate US 19/Myrtle Avenue between Hart Street and Maple Street within Segment A. At this location, the CSX rail line crosses Alternate US 19 at grade and contains railroad crossing signs and signals. One freight train traverses this railroad crossing per day.

Construction

Construction activities for the proposed improvements may have minor air, noise, vibration, water quality, traffic flow, and visual impacts for those residents and travelers within the immediate vicinity of the project.

The air quality impact will be temporary and will primarily be in the form of emissions from diesel-powered construction equipment. Air pollution associated with the creation of airborne particles will be effectively controlled through the use of watering or the application of other controlled materials in accordance with FDOT's "Standard Specifications for Road and Bridge Construction" as directed by the FDOT Project Engineer.

Noise and vibrations impacts will be from the heavy equipment movement. Noise control measures will include those contained in FDOT's "Standard Specifications for Road and Bridge Construction". Adherence to local construction noise and/or construction vibration ordinances by the contractor will also be required where applicable.

Water quality impacts resulting from erosion and sedimentation will be controlled in accordance with FDOT's "Standard Specifications for Road and Bridge Construction" and through the use of Best Management Practices.

Maintenance of traffic and sequence of construction will be planned and scheduled so as to minimize traffic delays throughout the project. Signs will be used as appropriate to provide notice of road closures and other pertinent information to the traveling public. The local news media will be notified in advance of road closings and other construction-related activities which could excessively inconvenience the community.



A sign providing the name, address, and telephone of a FDOT contact person will be displayed on-site to assist the public in obtaining immediate answers to questions and logging complaints about project activity.

Therefore, implementation of the proposed improvements should not result in significant construction impacts.

Bicyclists and Pedestrians

The project involves multimodal transportation improvements that should enhance the safety and operations on Alternate US 19 for all users, including bicyclists and pedestrians.

Navigation

Improvements are proposed to two (2) bridges: Curlew Creek bridge in Segment B and the Anclote River bridge in Segment D. While Curlew Creek downstream of the bridge is navigable, upstream of the bridge does not appear to be. Additional research is required to determine if a prior United States Coast Guard (USCG) bridge permit was required for the existing bridge. If so, the proposed bridge improvements would need to be designed so that navigable clearances are not reduced and the permit would need to be modified for the proposed improvements.

The Anclote River is navigable both upstream and downstream of the bridge. The proposed bridge improvements need to be designed so that navigable clearances are not reduced. A USCG bridge permit would have been required for the existing bridge. The permit would need to be modified for the proposed improvements.

4.4.5 Summary

Anticipated Permits

The following permits are anticipated for this project:

<u>Permits/Licenses</u>	<u>Issuing Agency</u>
Section 404 Dredge and Fill Permit	United States Army Corps of Engineers (USACE)
Environmental Resource Permit (ERP)	Southwest Florida Water Management District (SWFWMD)
National Pollutant Discharge Elimination System (NPDES) Permit	Florida Department of Environmental Protection (FDEP)

Commitments

Commitments will be identified during potential PD&E Studies.



4.5 Planning-Level Cost Analysis

The Corridor Study is broken down into four jurisdictional boundaries for cost assessment. Each jurisdiction includes segmented roadway improvements to enhance the experience for all who use the Alternate US 19 corridor. In specific locations, including Downtown Dunedin and the Curlew Road intersection, there are multiple alternatives that have been assessed. Below is the breakdown of the cost estimates by jurisdiction. Construction costs were estimated in November 2018 using the FDOT's Long Range Estimate (LRE) web-based computer system, and can be found in **Appendix D**.

Clearwater (Segment A)

The majority of the proposed improvements throughout Clearwater do not require additional right of way. In an effort to minimize right of way impacts, it is proposed to repurpose multiple segments of the Alternate US 19 corridor to better accommodate all modes of transportation, including bicyclists and pedestrians. Minimal right of way is required for the proposed improvements at the Lakeview Road, Druid Road, Court Street, and Fairmont Avenue intersections. The estimated planning level cost for all proposed improvements within Clearwater, from Belleair Road to Union Street, is \$10.0 million.

Dunedin (Segment B)

The majority of the proposed improvements throughout Dunedin focus on the ability of pedestrians and bicyclists to navigate along the corridor. The improvements include additional crosswalks along Edgewater Drive, additional medians adjacent to Weaver Park, and improved connectivity across the Curlew Creek Bridge. These additional features would not require additional right of way.

Two alternatives have been proposed for the Downtown Dunedin area along Main Street. One alternative is an additional signal at the Alternate US 19 and Marina Plaza intersection. The second alternative is adjoining roundabouts at both Marina Plaza and Broadway. Both alternatives would require additional right of way, with the roundabout alternative having the greatest impact.

There are four proposed alternatives at the Alternate US 19 and Curlew Road intersection. The four alternatives include innovative intersection concepts, as well as increasing the existing roadway geometry to better accommodate the heaviest traffic movements. The innovative intersections include a DLT concept in the east-west direction, a CFI for all four approaches, and a MUT concept in the north-south direction. All four alternatives would require additional right of way, with the MUT having the greatest impact.

The estimated planning level cost for all proposed improvements within Dunedin, from Union Street to Curlew Road, including the most costly alternatives for Downtown Dunedin and the Curlew Road intersection, is \$13.3 million. The estimated planning level costs for the Downtown Dunedin and the Curlew Road intersection alternatives are summarized as follows:

- Downtown Dunedin
 - Signalized = \$1.5 million
 - Roundabout = \$2.2 million
- Curlew Road Intersection
 - Additional Lanes = \$2.1 million
 - Displaced Left Turns = \$2.8 million
 - Continuous Flow Intersection = \$8.2 million
 - Median U-turn = \$4.8 million



Palm Harbor (Segment C)

The proposed improvements throughout Palm Harbor would not require any additional right of way. It has been proposed to repurpose portions of the roadway in order to improve safety and to better define the limits of downtown Palm Harbor. The existing roadway footprint would not need to be expanded to accommodate such features. The estimated planning level cost for all proposed improvements within Palm Harbor, from Curlew Road to Klosterman Road, is \$6.5 million.

Tarpon Springs (Segment D)

The proposed improvements throughout Tarpon Springs would not require any additional right of way. In order to provide connectivity for pedestrians and bicyclists, it has been proposed to widen the Anclote River Bridge to include sidewalks and bicycle lanes along both sides of the bridge. New sidewalks have also been proposed from the Anclote River Bridge to Anclote Boulevard, along both sides of Alternate US 19. All of the proposed improvements would have no impact to the existing right of way. The estimated planning level cost for all proposed improvements within Palm Harbor, from Klosterman Road to the Pinellas/Pasco County line, is \$7.9 million.

4.6 Summary of Alternatives Analysis

The No-Build Alternative and the proposed improvements (Build Alternative) were evaluated based on engineering factors, environmental effects, and project costs. The evaluations include estimates of traffic delays and right of way needs, as well as impacts to environmental resources. The evaluation also details cost estimates for construction, design, construction engineering and inspection, and maintenance. All evaluations identify the potential for impacts based on planning level analysis.

4.6.1 Clearwater (Segment A)

Table 4.7 summarizes the evaluation matrix of the No-Build versus Build Alternative for the Alternate US 19 corridor within Clearwater, from Belleair Road to Union Street. With the proposed lane repurposing within Clearwater, it is estimated that the cost of increased traffic delays and high construction costs will be outweighed by the benefit brought on by creating a safer, more user friendly corridor, and aesthetically pleasing corridor.

4.6.2 Dunedin (Segment B)

Table 4.8 summarizes the evaluation matrix of the No-Build versus Build Alternative for the Alternate US 19 corridor within Dunedin, from Union Street to Curlew Road. The evaluation of the Build Alternative takes into consideration the proposed improvements with the largest impacts and the highest costs in the Downtown Dunedin area and at the Curlew Road intersection.



Table 4.7 Evaluation of Proposed Improvements within Clearwater

Evaluation Criteria	No-Build Alternative	Build Alternative
<i>Livability and Multimodal</i>		
Meets Guiding Principles	No	Yes
<i>Mobility</i>		
Degree of Congestion	Moderate	Moderate
<i>Potential Right of Way (ROW) Impacts</i>		
Additional ROW Needed	None	Moderate
<i>Potential Environmental Effects</i>		
Archaeological/Historical Sites	None	High
Section 4(f) / Recreational Areas	None	Low
Wetlands	None	Low
Essential Fish Habitat (EFH)	None	Low
Pinellas Aquatic Preserve/OFW	None	Low
Threatened and Endangered Species, Potential Involvement	None	Low
Noise-Sensitive Sites	None	High
Petroleum Contamination & Hazardous Material Sites	None	High
<i>Estimated Project Construction Costs</i>		
Bridges	\$0	\$0
Roadway	\$0	\$5,083,850
Drainage	\$0	\$1,613,155
Signals/Signing/Lighting	\$0	\$1,453,851
Maintenance of Traffic (10%)	\$0	\$815,086
Mobilization (10%)	\$0	\$896,594
Additional Contingencies (1%)	\$0	\$98,625
Prelim. Estimate of Project Costs	\$0	\$9,961,161



Table 4.8 Evaluation of Proposed Improvements within Dunedin

Evaluation Criteria	No-Build Alternative	Build Alternative
<i>Livability and Multimodal</i>		
Meets Guiding Principles	No	Yes
<i>Mobility</i>		
Degree of Congestion	High	Moderate
<i>Potential Right of Way (ROW) Impacts</i>		
Additional ROW Needed	None	Moderate
<i>Potential Environmental Effects</i>		
Archaeological/Historical Sites	None	Moderate
Section 4(f) / Recreational Areas	None	Moderate
Wetlands	None	High
Essential Fish Habitat (EFH)	None	High
Pinellas Aquatic Preserve/OFW	None	High
Threatened and Endangered Species, Potential Involvement	None	High
Noise-Sensitive Sites	None	High
Petroleum Contamination & Hazardous Material Sites	None	High
<i>Estimated Project Construction Costs</i>		
Bridges	\$0	\$466,719
Roadway	\$0	\$6,833,702
Drainage	\$0	\$1,749,049
Signals/Signing/Lighting	\$0	\$1,781,264
Maintenance of Traffic (10%)	\$0	\$1,083,073
Mobilization (10%)	\$0	\$1,191,381
Additional Contingencies (1%)	\$0	\$181,446
Prelim. Estimate of Project Costs	\$0	\$13,286,634



4.6.2.1 Downtown Dunedin

Two improvement options have been developed along Main Street at the Marina Plaza and Broadway intersections. The first option provides back-to-back roundabouts at the Marina Plaza and Broadway intersections that are connected such that they act as one large, continuous roundabout between the two intersections. The second option reorients Alternate US 19 such that the transition from Edgewater Drive to Main Street is more continuous and installs a traffic signal at the Marina Plaza intersection. The new traffic signal is coordinated with the Broadway intersection such that the two traffic signals act as one, thereby reducing queues between the two intersections. Both options were analyzed against the No-Build Alternative, and are summarized in **Table 4.9**.

4.6.2.2 Curlew Road

Four improvement options have been developed at the Curlew Road intersection. The first option provides two through lanes in the northbound and southbound directions that merge back down to one lane downstream of the intersection and adds a westbound left turn lane. The second option adds DLTs in the eastbound and westbound directions. The third option adds DLTs for all approaches of the intersection, also known as a CFI. Finally, the fourth option converts the intersection into a northbound and southbound oriented MUT intersection. All options were analyzed against the No-Build Alternative, and are summarized in **Table 4.10**.

4.6.3 Palm Harbor (Segment C)

Table 4.11 summarizes the evaluation matrix of the No-Build versus Build Alternative for the Alternate US 19 corridor within Palm Harbor, from Curlew Road to Klosterman Road. Overall, the proposed concepts within Palm Harbor have focused on providing continuous pedestrian and bicycle accommodations, resolving drainage concerns, resolving safety concerns, and creating a more aesthetically pleasing corridor. Therefore, it is not expected that there will be any significant impacts or costs associated with the proposed improvements.

4.6.4 Tarpon Springs (Segment D)

Table 4.12 summarizes the evaluation matrix of the No-Build versus Build Alternative for the Alternate US 19 corridor within Tarpon Springs, from Klosterman Road to the Pinellas/Pasco County line. Overall, the proposed concepts within Tarpon Springs have focused on providing continuous pedestrian and bicycle accommodations and resolving drainage concerns. Therefore, it is not expected that there will be any significant impacts or costs associated with the proposed improvements.



Table 4.9 Evaluation of Proposed Improvements for Downtown Dunedin

Evaluation Criteria	No-Build Alternative	Build Alternative 1 (Roundabout)	Build Alternative 2 (Signalized)
Livability and Multimodal			
Meets Guiding Principles	No	Yes	Yes
Safety and Mobility			
Degree of Congestion	High	Moderate	Low
Overall Vehicle Delay	117.6	37.8	24.8
Level of Service	F	E	C
Vehicular Conflict Points	41	12	41
Transit Safety	Excellent	Excellent	Excellent
Pedestrian/Bicycle Safety	Fair/Good	Good/Excellent	Good
Potential Right of Way (ROW) Impacts			
Additional ROW Needed (acres)	0.00	0.33	0.10
Potential Environmental Effects			
Archaeological/Historical Sites	None	Moderate	Moderate
Section 4(f) / Recreational Areas	None	High	High
Wetlands	None	Low	Low
Essential Fish Habitat (EFH)	None	Low	Low
Pinellas Aquatic Preserve/OFW	None	Low	Low
Threatened and Endangered Species, Potential Involvement	None	Low	Low
Noise-Sensitive Sites	None	High	High
Petroleum Contamination & Hazardous Material Sites	None	High	High
Estimated Project Construction Costs			
Bridges	\$0	\$0	\$0
Roadway	\$0	\$1,053,974	\$492,387
Drainage	\$0	\$619,424	\$359,909
Signals/Signing/Lighting	\$0	\$104,488	\$306,520
Maintenance of Traffic (10%)	\$0	\$177,789	\$115,882
Mobilization (10%)	\$0	\$195,567	\$127,470
Additional Contingencies (1%)	\$0	\$50,000	\$50,000
Prelim. Estimate of Project Costs	\$0	\$2,201,241	\$1,452,167



Table 4.10 Evaluation of Proposed Improvements for the Curlew Road Intersection

Evaluation Criteria	No-Build Alternative	Build Alternative 1 (Add Lanes)	Build Alternative 2 (E-W DLT)	Build Alternative 3 (CFI)	Build Alternative 4 (MUT)
Livability and Multimodal					
Meets Guiding Principles	No	Yes	Yes	Yes	Yes
Safety and Mobility					
Degree of Congestion	High	Moderate	Moderate	Moderate	Moderate
Overall Vehicle Delay	93.0	54.8	45.8	41.8	55.0
Level of Service	F	D	D	D	D
Vehicular Conflict Points	32	32	30	28	16
Transit Safety	Excellent	Excellent	Excellent	Excellent	Good
Pedestrian/Bicycle Safety	Good	Good	Good	Good	Excellent
Potential Right of Way (ROW) Impacts					
Additional ROW Needed (acres)	0.00	0.02	0.03	0.11	0.84
Potential Environmental Effects					
Archaeological/Historical Sites	None	Moderate	Moderate	Moderate	Moderate
Section 4(f) / Recreational Areas	None	Moderate	Moderate	Moderate	Moderate
Wetlands	None	Low	Low	Low	Low
Essential Fish Habitat (EFH)	None	Low	Low	Low	Low
Pinellas Aquatic Preserve/OFW	None	Low	Low	Low	Low
Threatened and Endangered Species, Potential Involvement	None	Low	Low	Low	Low
Noise-Sensitive Sites	None	High	High	High	High
Petroleum Contamination & Hazardous Material Sites	None	High	High	High	High
Estimated Project Construction Costs					
Bridges	\$0	\$0	\$0	\$0	\$0
Roadway	\$0	\$1,372,866	\$1,303,375	\$4,246,155	\$3,325,286
Drainage	\$0	\$264,758	\$345,194	\$919,519	\$533,829
Signals/Signing/Lighting	\$0	\$24,958	\$600,983	\$1,565,374	\$55,170
Maintenance of Traffic (10%)	\$0	\$166,258	\$224,955	\$673,105	\$391,428
Mobilization (10%)	\$0	\$182,884	\$247,451	\$740,415	\$430,571
Additional Contingencies (1%)	\$0	\$50,000	\$50,000	\$81,446	\$50,000
Prelim. Estimate of Project Costs	\$0	\$2,061,724	\$2,771,958	\$8,226,014	\$4,786,284



Table 4.11 Evaluation of Proposed Improvements within Palm Harbor

Evaluation Criteria	No-Build Alternative	Build Alternative
<i>Livability and Multimodal</i>		
Meets Guiding Principles	No	Yes
<i>Safety and Mobility</i>		
Degree of Congestion	Moderate	Moderate
<i>Potential Right of Way (ROW) Impacts</i>		
Additional ROW Needed	None	Low
<i>Potential Environmental Effects</i>		
Archaeological/Historical Sites	None	Moderate
Section 4(f) / Recreational Areas	None	High
Wetlands	None	Moderate
Essential Fish Habitat (EFH)	None	Moderate
Pinellas Aquatic Preserve/OFW	None	Moderate
Threatened and Endangered Species, Potential Involvement	None	Moderate
Noise-Sensitive Sites	None	High
Petroleum Contamination & Hazardous Material Sites	None	High
<i>Estimated Project Construction Costs</i>		
Bridges	\$0	\$0
Roadway	\$0	\$3,789,664
Drainage	\$0	\$1,367,143
Signals/Signing/Lighting	\$0	\$176,224
Maintenance of Traffic (10%)	\$0	\$533,303
Mobilization (10%)	\$0	\$586,633
Additional Contingencies (1%)	\$0	\$64,530
Prelim. Estimate of Project Costs	\$0	\$6,517,497



Table 4.12 Evaluation of Proposed Improvements within Tarpon Springs

Evaluation Criteria	No-Build Alternative	Build Alternative
<i>Livability and Multimodal</i>		
Meets Guiding Principles	No	Yes
<i>Safety and Mobility</i>		
Degree of Congestion*	High	High
<i>Potential Right of Way (ROW) Impacts</i>		
Additional ROW Needed (acres)	None	Low
<i>Potential Environmental Effects</i>		
Archaeological/Historical Sites	None	High
Section 4(f) / Recreational Areas	None	Low
Wetlands	None	High
Essential Fish Habitat (EFH)	None	High
Pinellas Aquatic Preserve/OFW	None	High
Threatened and Endangered Species, Potential Involvement	None	High
Noise-Sensitive Sites	None	Low
Petroleum Contamination & Hazardous Material Sites	None	Low
<i>Estimated Project Construction Costs</i>		
Bridges	\$0	\$350,962
Roadway	\$0	\$2,080,774
Drainage	\$0	\$3,434,426
Signals/Signing/Lighting	\$0	\$629,627
Maintenance of Traffic (10%)	\$0	\$649,579
Mobilization (10%)	\$0	\$714,537
Additional Contingencies (1%)	\$0	\$78,599
Prelim. Estimate of Project Costs	\$0	\$7,938,503

*High existing traffic congestion is expected to persist due to limited right of way needed for improvements and the significant social, cultural, and historic impacts to adjacent land uses if right of way was to be acquired.



5 Alternatives Selection and Next Steps

5.1 Proposed Improvements

Based on various safety concerns, traffic operations, comments received from the public, and the overall need to provide a pedestrian and bicycle friendly corridor, the following sections document the proposed segment and spot specific recommendations for Alternate US 19 from Belleair Road to the Pinellas/Pasco County line. The improvements do not solve all safety and operational issues, but are expected to improve the overall safety of the corridor and reduce congestion in areas where it was of a concern while keeping with the overall vision of the corridor.

5.1.1 Segment Improvements

Table 5.1 summarizes the proposed segment improvements with the expected duration to completion of construction, consistency with the Corridor Vision Plans' Guiding Principles, and the estimated cost of construction along Alternate US 19 from Belleair Road to the Pinellas/Pasco County line. Short-term delineates improvements that can be completed between the years 2019 and 2025, mid-term delineates improvements that can be completed between the years 2026 and 2040, and long-term delineates improvements that would not be completed until after 2040.

Table 5.1 Proposed Segment Improvements

Location	Improvements	Duration	Guiding Principles	Cost
Clearwater (Segment A)				
Belleair Road to Court Street	<ol style="list-style-type: none"> 1. Reduce lanes from a six-lane typical section to a four-lane typical section. 2. Increase the lane and median widths. 3. Add bicycle lanes in each direction. 	Mid Term		\$2,058,307
Court Street (at Missouri Avenue) to MLK Jr. Avenue	<ol style="list-style-type: none"> 1. Convert the TWLT lane to a raised median with left turn bays. 	Short Term		\$601,906
Chestnut Street to Pierce Street	<ol style="list-style-type: none"> 1. Reduce lanes from a four-lane typical section to a two-lane typical section. 2. Add left turn bays in each direction. 	Mid Term		\$234,098
Pierce Street to Drew Street	<ol style="list-style-type: none"> 1. Reduce a lane from a four-lane typical section to a three-lane typical section, with two lanes in the northbound direction and one lane in the southbound direction. 2. Add a striped median. 3. Add left turn bays in each direction. 	Mid Term		\$234,098
Drew Street to Marshall Street	<ol style="list-style-type: none"> 1. Reduce lanes from a four-lane typical section to a two-lane typical section. 2. Add a raised median. 3. Add left turn bays in each direction. 4. Add bicycle lanes in each direction. 	Mid Term		\$709,110
Stevenson Creek Bridge	<ol style="list-style-type: none"> 1. Reduce sidewalk on the west side of the bridge, lane widths, and striped median. 2. Add a sidewalk on the east side of the bridge. 	Mid Term		\$487,945
Sunset Point to Union Street	<ol style="list-style-type: none"> 1. Make travel lanes 11-feet in each direction. 2. Widen the sidewalks on each side of the roadway. 	Mid Term		\$1,128,595



Table 5.1 (Continued) Proposed Segment Improvements

Location	Improvements	Duration	Guiding Principles	Costs
Dunedin (Segment B)				
Union Street to Marina Plaza	<ol style="list-style-type: none"> 1. Make travel lanes 11-feet in each direction. 2. Widen the sidewalks on each side of the roadway. 	Mid Term		\$1,484,817
Curlew Creek Bridge	<ol style="list-style-type: none"> 1. Add a sidewalk on the west side of the roadway. 2. Add bicycle lanes in each direction. 	Long Term		\$836,984
Palm Harbor (Segment C)				
Virginia Avenue to Michigan Avenue	<ol style="list-style-type: none"> 1. Convert open drainage system to closed drainage system with curb and gutter. 2. Convert portions of the TWLT lane to a raised median with left turn bays. 3. Move sidewalk on the west side adjacent to the roadway. 4. Add a sidewalk on the east side of the roadway. 	Mid Term		\$593,393
Michigan Avenue to Ketch Circle	<ol style="list-style-type: none"> 1. Add curb to the east side of the roadway. 2. Convert portions of the TWLT lane to a raised median with left turn bays. 3. Widen sidewalk on the east side of the roadway. 4. Widen bicycle lane on the west side of the roadway. 	Mid Term		\$2,149,488
Ketch Circle to Wai Lani Road	<ol style="list-style-type: none"> 1. Convert portions of the TWLT lane to a raised median with left turn bays. 	Short Term		\$96,444
North of Dunn Drive to Harry Street	<ol style="list-style-type: none"> 1. Connect the existing sidewalk on the west side of the roadway. 	Short Term		\$50,033
South of Klosterman Road	<ol style="list-style-type: none"> 1. Connect the existing sidewalk on the west side of the roadway. 	Short Term		\$100,623
Tarpon Springs (Segment D)				
Klosterman Road to Meres Boulevard	<ol style="list-style-type: none"> 1. Convert open drainage system to a closed drainage system with curb and gutter. 2. Mark the outside shoulders as designated bicycle lanes. 3. Widen the sidewalks on each side of roadway. 	Mid Term		\$3,879,312
Anclote River Bridge	<ol style="list-style-type: none"> 1. Add a sidewalk on the east side of the bridge. 2. Add bicycle lanes in each direction of the bridge. 3. Remove the guardrail between the southbound lane and the sidewalk. 4. Add new barrier walls on each side of the bridge 	Long Term		\$351,844
Dixie Highway to Anclote Boulevard	<ol style="list-style-type: none"> 1. Add a sidewalk on the east side of the roadway. 	Short Term		\$2,221,621



5.1.2 Spot Improvements

Table 5.2 summarizes the proposed spot improvements with the expected duration to completion of construction, consistency with the Corridor Vision Plans' Guiding Principles, and the estimated cost of construction along Alternate US 19 from Belleair Road to the Pinellas/Pasco County line. Short-term delineates improvements that can be completed between the years 2019 and 2025, mid-term delineates improvements that can be completed between the years 2026 and 2040, and long-term delineates improvements that would not be completed until after 2040.

Table 5.2 Proposed Spot Improvements

Location	Improvements	Duration	Guiding Principles	Costs
Clearwater (Segment A)				
Belleair Road	1. Add a westbound left turn lane. 2. Reduce northbound and southbound approaches from three to two through lanes.	Mid Term		\$300,953
Between Woodlawn and Bellevue Boulevard	1. Add a pedestrian midblock crosswalk.	Short Term		\$11,075
Lakeview Road	1. Convert intersection into a two-lane roundabout.	Mid Term		\$888,420
Clearwater Plaza	1. Reduce northbound and southbound approaches from three to two through lanes.	Mid Term		\$297,584
Druid Road	1. Convert intersection into a two-lane roundabout.	Mid Term		\$888,420
Court Street at Missouri Avenue	1. Add a northbound left turn lane. 2. Add a westbound left turn lane.	Mid Term		\$601,906
Chestnut Street	1. Convert the outer northbound lane to a right turn only lane. 2. Repurpose southbound approach to one left turn lane and one through lane.	Mid Term		\$145,455
Court Street at Myrtle Avenue	1. Reduce northbound approach to one left turn lane and one through lane. 2. Reduce southbound approach to one through lane and one right turn lane.	Mid Term		\$145,455
Between Franklin Street and Pierce Street	1. Add a pedestrian midblock crosswalk.	Short Term		\$11,075
Between Pierce Street and Park Street	1. Add a pedestrian midblock crosswalk.	Short Term		\$11,075
Cleveland Street	1. Add a northbound left turn lane. 2. Reduce southbound approach to one left turn lane and one through lane.	Mid Term		\$110,645
Drew Street	1. Add a northbound left turn lane. 2. Convert the outer northbound lane to a right turn only lane. 3. Reduce the southbound approach to one left turn lane and one through lane.	Mid Term		\$110,645
Seminole Street	1. Reduce northbound and southbound approaches to one left turn lane and one through lane.	Mid Term		\$120,466



Table 5.2 (Continued) Proposed Spot Improvements

Location	Improvements	Duration	Guiding Principles	Costs
Palmetto Street	1. Reduce northbound approach to one through lane. 2. Reduce southbound approach to one left turn lane and one through lane.	Mid Term		\$121,565
Pinellas Trail Crossing	1. Pedestrian midblock crosswalk will be updated.	Short Term		\$11,075
Marshall Street	1. Reduce northbound and southbound approaches to one left turn lane and one through lane.	Mid Term		\$110,645
Fairmont Street	1. Convert intersection into a one-lane roundabout.	Long Term		\$897,807
Between Sedeeva Street and Charles Street	1. Add a pedestrian midblock crosswalk.	Short Term		\$11,075
Between Marine Street and Union Street	1. Add a pedestrian midblock crosswalk.	Short Term		\$11,075
Dunedin (Segment B)				
South of Orangewood Drive	1. Add a pedestrian midblock crosswalk.	Short Term		\$11,075
South of Florida Avenue	1. Add a pedestrian midblock crosswalk.	Short Term		\$11,075
At the Fenway Hotel	1. Add a pedestrian midblock crosswalk.	Short Term		\$11,075
Marina Plaza	Option 1: Convert intersection into a 'dog-bone' roundabout that is connected with the Main Street intersection.	Long Term		\$888,943
	Option 2: Adjust the orientation of the intersection such that the westbound approach becomes a southbound approach and add a traffic signal that is coordinated with the Main Street intersection.	Mid Term		\$579,408
Main Street	Option 1: Convert intersection into a 'dog-bone' roundabout that is connected with the Marina Plaza intersection.	Long Term		\$888,943
	Option 2: Cluster traffic signal with the Marina Plaza intersection.	Mid Term		\$579,408
South of Pershing Street to North of Josiah Cephus Weaver Park	1. Extend the raised median.	Short Term		\$38,375
Curlew Road	Option 1: Add a northbound through lane, convert the southbound right turn lane to a shared through and right turn lane, add a westbound left turn lane, and merge northbound and southbound through movements from two lanes to one lane downstream of the intersection.	Long Term		\$1,662,581



Table 5.2 (Continued) Proposed Spot Improvements

Location	Improvements	Duration	Guiding Principles	Costs
Curlew Road	Option 2: Convert intersection into an east-west oriented DLT intersection.	Long Term		\$2,249,552
	Option 3: Convert intersection into a CFI.	Long Term		\$6,731,048
	Option 4: Convert intersection into a north-south oriented MUT intersection.	Long Term		\$3,914,284
Palm Harbor (Segment C)				
Tampa Road	1. Convert northbound right turn lane to a shared through and right turn lane. 2. Add a southbound left turn lane. 3. Add a southbound through lane. 4. Merge northbound and southbound through movements from two lanes to one lane downstream of the intersection.	Long Term		\$972,631
Ketch Circle	1. Add a pedestrian midblock crosswalk.	Short Term		\$14,337
Tarpon Springs (Segment D)				
South of Cypress Street	1. Add a pedestrian midblock crosswalk.	Short Term		\$14,337
Between Spruce Street and Cedar Street	1. Add a pedestrian midblock crosswalk.	Short Term		\$14,337

5.2 Next Steps

Following the completion of this Alternate US 19 Corridor Study, Forward Pinellas in coordination with FDOT will identify potential projects from the proposed improvements to move forward as 3-R, safety enhancement, traffic operations signal re-timing projects, design, or PD&E study projects. Funding sources for each potential project will be obtained from local, state, and/or federal sources.

Currently, there is \$1.2 million programmed for Preliminary Engineering in fiscal year 2022 and \$2.0 million programmed in fiscal year 2023 for Alternate US 19 from Belleair Road to the Pinellas/Pasco County line. The construction phase of any potential improvement will be funded once funds become available upon the completion of design.